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Nasal Dysfunction in Children*

• Trauma is the cause of most septal and nasal deformities. These defects result in nasal dysfunction and should be corrected surgically early in life.

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THE pediatrician, family physician, and rhinologist see many children with disturbed nasal function. It is important to keep such a condition in mind, for it may later develop into a deformity of serious consequence. A thorough examination should be done on these children to evaluate the pathologic abnormalities present, and adequate surgical correction should be performed when indicated. In this paper, certain pathologic conditions in children causing nasal dysfunction will be discussed from the standpoint of etiology, symptoms, physical findings and surgical treatment, and cases illustrative of the results that can be expected from timely surgical treatment will be cited. Although acute nasal injuries in children are extremely important,[1] they will not be included in this discussion. It should be kept in mind that a child's nose differs in many ways from a small adult's nose. In the process of developing,[2] gradual changes take place at least until the end of the second decade of life, and some believe that the nose does not actually stop "growing" until around the twenty-fifth year of life.

* Presented at the Eighty-first Annual meeting of the Louisiana State Medical Society, May 9, 1961, in New Orleans.

Etiology

It is generally agreed that trauma is the cause of most septal and nasal deformities. Cottle and coworkers [3] reported that more than 6 per cent of 709 newborns on whom photographs were made within the first twenty-four hours of life showed definite evidence of gross lateral displacement of the external nasal pyramid. The incidence of simple flattening ranged from 30 to 60 per cent. Spontaneous restoration often occurs. Such deformities probably were caused during birth.[4] However, some are born with what is thought to be healed injuries. The occipito-nasal diameter in the newborn is frequently equal to or greater than the occipito-mental diameter, and the nasal structures, being soft tissues, undergo considerable distortion while passing through the birth canal. It is not unrealistic to suppose that a larger percentage could sustain some internal injury about the premaxillary area that could not be detected by photographs and perhaps not even by examination.

As babies develop, they get more "bumps" on the nose, especially when crawling and during the first stages of walking. The physician rarely sees these injuries, but when he does see a baby with

a severe nasal injury sustained in this way, he should not take it too lightly.[5] These babies may be the ones seen a short while later with a hematoma of the septum or over the upper lateral cartilages with possible absorption of these cartilages. Also, from such injuries septal abscesses may develop. In children nasal injury is most frequently to the cartilaginous structures, but the bony parts may also be damaged. Bony injuries may be overlooked, since the nasal bones are underdeveloped and are of membranous bone. Also, the frontal process may be injured and later cause a real deformity. Among other causes of nasal dysfunction are: embryonic remains in the septal space (para-septal cartilage) and extra small openings of the nostrils, due in some cases to a tension septum. Examples of these last conditions will be described later in this paper.

Clinical Manifestations

Difficulty in breathing through the nose is the outstanding symptom of these children. This is evidenced by breathing through the mouth. Other manifestations include frequent colds, nasal and postnasal drainage, sinus infections, thumb or finger sucking, nervousness, irritability, insomnia, apparent failure of mental development (by doing poorly in school) and in some cases greatly decreased stamina.

Examination of the pathologic nose may reveal a number of abnormalities. Thus, the caudal end of the septum may be in either the right or left vestibule. The cartilaginous or bony septum, or both, may occlude one nasal cavity and allow too much space in the opposite side. There may be impaction of cartilage, bone, or both, including scar, along or below the inferior turbinate on one side or the other. Occasionally, the septum may be so thick that it obstructs both sides. Frequently, the upper lateral cartilages are too far from the septum, so that normal valve action is prevented. This condition is known as "ballooning." In other cases the septum may be perfectly straight but the upper lateral cartilages are too close to the septum. Infections, tumors, foreign bodies, allergy and hypertrophied adenoids must obviously be ruled out.

The external nose may be malaligned, and there may be "c" shaped or other deformities. Some may have "saddling" and others may have underdevelopment of one part and overdevelopment of another. In the growing child, it is important to observe the teeth and palatal arch, and check for malalignment of facial features. A mere casual examination of the chest may disclose considerable underdevelopment due possibly to nasal dysfunction.

Surgical Correction

Surgical correction is indicated if, in the opinion of the rhinologist, pediatrician or family physician, the child is not responding to non-surgical procedures. Operation should be performed before too many anomalies of growth start developing. Cottle and associates[3] emphasized the center of the septum mosaic, which is a most important area in the nose where the cartilaginous septum, vomer, maxilla and premaxilla meet. Early injury to this area can produce all varieties of changes in growth, and normal development of the nose may be retarded. Therefore, it is most important that the structures be placed in normal position, both externally and internally, so that nasal function can be utilized to the fullest extent. A small, juvenile nose is less efficient than one of normal size, but it will be much better than one presenting an obstructing septum with or without a depressed lateral wall.[6]

The surgeon who operates on a child's nose must be aware that he is dealing with a structure that has growth potential. However, many children need help, and the compromise cannot be to "watch and wait." Operation must be carefully performed, and often just a "little bit" will be of great help. Again, it does not seem reasonable to let a deformed nose grow (if it will) to a larger deformity when a corrective operation performed early in life could erase early psychological im-

pressions. Far more important than this is reestablishment of a better nasal air passage, its associated reflexes and all that this means.[7]

Among my cases, operation of the nasal septum was the most important procedure. One patient (Fig. 1), 18 months of age, required only removal of paraseptal cartilages without disturbing the middle cartilage; another (Fig. 2) required removal of a small amount of cartilage from the dorsum and caudal end of the septum after the upper lateral cartilages had been separated submucosally.

During the past few years all septums with abnormalities in the premaxillary area[8] have been operated on by the "maxilla-premaxilla" approach as described by Cottle.[9] In my experience[10] this approach has proved to be a conservative procedure by which any part of the nasal septum can be reached and judiciously treated. The support of the cartilaginous vault and roof can be controlled and all the required changes can be made. The functional result is good and the sequelae are minimal.[11]

In most of my patients younger than 10 years of age, the deformity was limited to the cartilaginous vault and could be corrected without bone work. However, lateral osteotomies were performed when it was necessary to realign the external nasal pyramid, as operation on the septum alone would not produce the desired results.

Another most important procedure is attention to the upper lateral cartilages.[12] They can be mobilized submucosally via the septum or they may be uncovered through intercartilaginous incisions and attended to as necessary. Usually, little should be done to the cartilage of the lobule.[13] These cartilages may be uncovered, if necessary, through the intercartilaginous incisions or through incisions over the caudal end of the lobular cartilages; the spring may be broken at the dome or where needed. In children they should be neglected unless they are badly deformed, unsymmetrical, or both.

The results of these procedures, as a whole, are most gratifying. There are some children who may require additional

Figure 1—(Case 1). Both nasal cavities obstructed by paraseptal cartilages.

surgical treatment later, and both the family and the rhinologist should be aware of this. It is not my intention to convey the idea that every child with some deformity requires surgical correction. The ones requiring operation must be carefully selected according to the indications discussed earlier in this paper.

Case Reports

The following cases illustrate the kind of results that may be expected from timely surgical treatment.

Case No. 1. (Fig. 1). This baby boy, aged 18 months, had had constant colds with high fever, was nervous and slept poorly. After removal of the paraseptal cartilages, nasal breathing was good and the child had few colds, slept well and was not nervous.

Case No. 2. (Fig. 2). This 5½-year-old girl was a mouth breather and was extremely nervous and restless while sleeping. A small amount of cartilage was removed from the dorsum and caudal end of the septum after the upper lateral cartilages were separated submucosally. Postoperatively, the child breathed through the nose, was not irritable and had no difficulty sleeping.

Case No. 3. (Fig. 3). The case of this 16 year old boy is presented because it shows the results of deferring operation. He possibly should have been operated on earlier in life. When seen, he was complaining of cough with vomiting. He was suspected of having heart trouble, and had to stay out of school most of the time. He had little stamina and his chest was underdeveloped. After reconstruction of the nasal septum, realign-

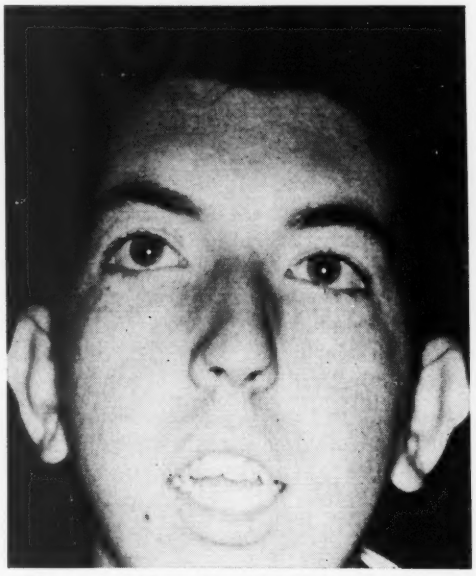

Figure 3—(Case 3). Malalignment of nose, high palatal arch, mouth open.

Figure 2—(Case 2). Note small openings of nostrils.

ment of the external nose and operation on the upper lateral cartilages and lobule, the cough and vomiting disappeared. The boy can now run and play, has greatly increased stamina, and attends school regularly.

Case No. 4. (Fig. 4). This 14 year old boy was underdeveloped generally, had frequent colds and sore throat with high fever and breathed

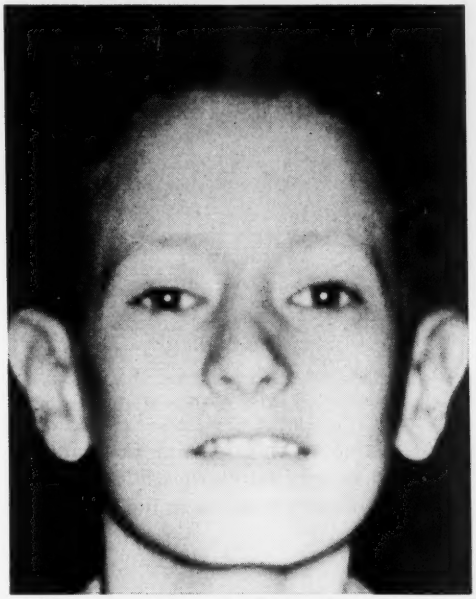

Figure 4.—(Case 4). Deformity of external nose and nasal septum, mouth breather.

through the mouth. After reconstruction of the nasal septum and realignment of the external nasal pyramid, breathing was through the nose, infections decreased and the patient's standing in school rose from the bottom of the class to fourth from the top.

Case No. 5. (Fig. 5). This 11 year old boy was a mouth breather, had frequent infections of the upper respiratory tract and was a poor student, nervous and a bed wetter. After reconstruction of the nasal septum and nasal spine, realignment of the external nasal pyramid and operation on the upper lateral cartilages, the child was able to breathe through the nose, no longer wet the bed and was much calmer.

Case No. 6. (Fig. 6). This boy, aged 9 years, was a mouth breather and was failing in school. After reconstruction of the nasal septum and nasal spine, mobilization of the lobular cartilages through intercartilaginous incisions, and operation on the upper lateral cartilages, the patient was able to breathe through the nose, slept better and improved in his school work.

Case No. 7. (Fig. 7). This girl, aged 12 years, breathed partially through the mouth. A nasal

Figure 5—(Case 5). Malalignment of nose, septal obstruction.

deformity was first detected at the age of 6 years. After reconstruction of the nasal septum and spine, realignment of the external nasal pyramid and operation on the upper lateral and lobular cartilages, the child could breathe through the nose and is doing better in school.

Case No. 8. (Fig. 8). This girl, aged 4½ years, had sustained a nasal injury two years previously. Breathing was through the mouth. After reconstruction of the nasal septum, median osteotomy and operation on the upper lateral cartilages, the child had no difficulty breathing through the nose.

It is important that the surgeon examine these patients periodically for a long time after operation. To the close observer, many changes may be seen over a period of months and even years. This is the way that one can better evaluate the results.

Summary

Disturbed nasal function in children should be corrected surgically if the desired results cannot be obtained by nonsurgical procedures. Surgical correction of nasal dysfunction in children can be

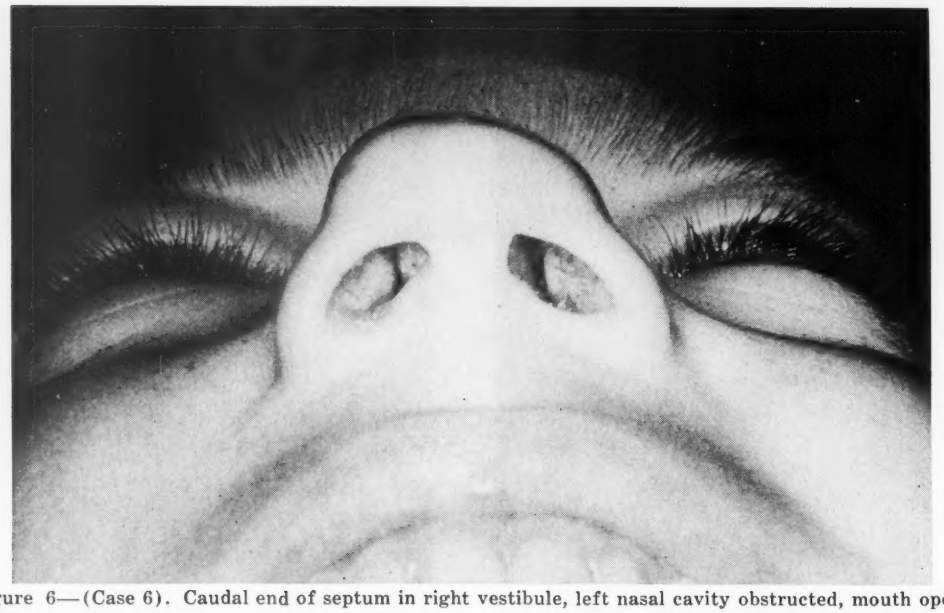

Figure 6—(Case 6). Caudal end of septum in right vestibule, left nasal cavity obstructed, mouth open.

safe and probably will alleviate many symptoms if adequately performed. Several cases have been cited to illustrate the numerous complaints encountered and the results that may be expected from timely surgical correction of nasal deformities in children.

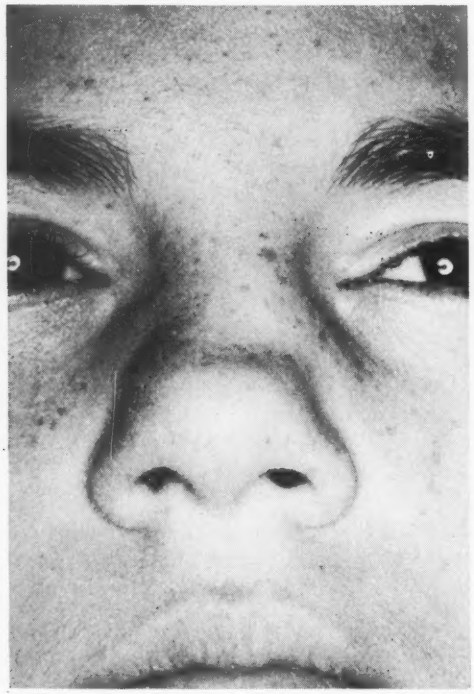

Figure 7—(Case 7). Deformity of external nose and septum; note asymmetry of lobular cartilages.

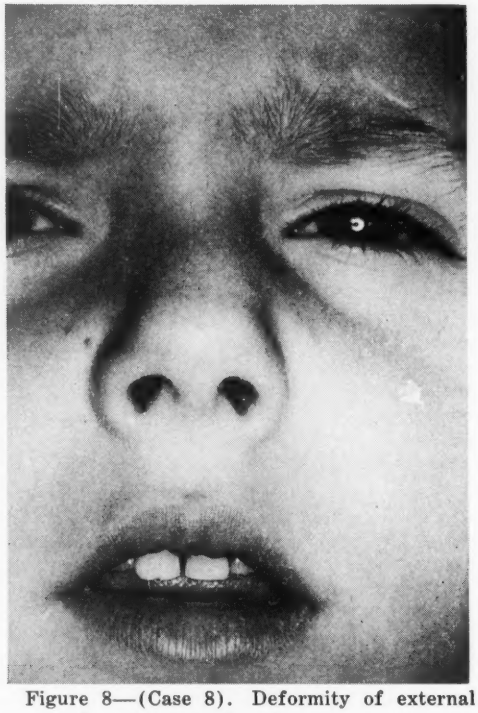

Figure 8—(Case 8). Deformity of external nose and septum, mouth open.

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Introductory Address of the President at the 9th Annual Meeting of the American Public Health Association

The time allotted to this address is much too short to justly set forth the many and valuable services of these dead associates. * * *

These, our associates, have ceased to labor, some of them while comparatively young, feeling that they had learned a little, only enough to begin to study to advantage, and were eagerly looking forward to more rapidly gained increments of knowledge and to riper and more abundant accomplishments in the future. As with them so with others; the plow may be stopped afield in the furrow. For some of us the time is assuredly short. Let us take our lesson of self-sacrifice and industry and honesty of purpose, from these our dead, and turn to the living, to our duties and opportunities, from the contemplation of what they worthily did to what there is for us to do.

New Orleans M. & S. J. 10:642 (March) 1882.

The Fragmentation of Community Health Services in Lousiana: The Responsibility of Organized Medicine

• A vital subject, of importance to all physicians, is presented in this paper. Further comments are made editorially.

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Significance of Fragmentation

IF, in the process of social change, any semblance of the institution of private practice of medicine is to be preserved, the medical professi•n will have to regain its leadership in community health affairs by continuous study and recognition of community health needs, by initiating, planning, and developing services based on needs, and by participating in the administration and operation of such services.

If we, the medical profession, are really serious in wanting to examine and analyze the so-called ungainly "public image" of ourselves which has developed as we continue to lose our leadership, we must, indeed, be brutally frank in this undertaking; we must be urgent and industrious in remolding the face of that "public image" lest it become an unavoidable historic monument, permanently engraved in our medical record. Let us therefore proceed on this basis.

From the struggle that has been waged during the last four decades by organized medicine against governmentally operated community health programs, four very significant facts have emerged:

1. The governmentally operated programs have increased in number and extent with a force as relentless and powerful as organized medicine's contention against them.

2. The medical profession has lost its leadership in community health affairs to a degree equivalent to the withdrawal of its support from health departments' growth and development.

3. The tempo at which the administration of community health services is being transferred from medically directed to non-medically directed agencies has quickened to a degree equivalent to the amount of reluctance that organized medicine has shown in taking the lead in planning for community health needs, and to that same degree, the traditional health agencies of government, the health departments, have lost their leadership and initiative in providing for the changing needs of the public.

4. To the extent that non-medically directed agencies have taken over the administration of community health services, to that extent have these services become fragmented, the development of their quality retarded, their cost of administration and operation increased, and their performance gnarled with confusion.

The first three points were discussed in more detail in a previous paper.[1] The purpose of this article is to discuss the fourth point, the fragmentation of community health services in Louisiana. In order that there be no misunderstanding as to the meaning of this subject, the phrase "fragmentation of community health services" will be defined at the outset. Since this paper will concern itself particularly with governmentally organized health programs, the definition will refer thereto. Fragmentation of community health services denotes: (1) the delegation of re-

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sponsibility for each specific health program to one of a variety of state agencies, thus, distributing the responsibilities for the various types of health services among any number of state agencies; and (2) the splintering of the administration of a specific health program area among more than one state agency, thus, encouraging redundancy or duplication in rendering health services by a variety of agencies.

Fragmentation Described

To illustrate the first aspect of the fragmentation process in Louisiana: The State Board of Health is the legally authorized agency to collect vital statistics, to prevent and control communicable diseases, to carry on maternal and child health services and environmental hygiene; the Department of Public Welfare is the legal authority for licensing of day care centers, for the medical care of the aged, and for the medical care services for the indigent; the Department of Education has legal responsibility for the training and rehabilitation of spastic children; the State Department of Hospitals is the legal authority for hospitalization of indigents, for mental health services, and for licensing of nursing homes. It must be remembered that the State Department of Hospitals, despite its name, is a non-medically directed agency.

The second aspect of the fragmentation process is expressly illustrated by the following example: The Louisiana State Board of Health, in 1936, was declared the state agency to administer maternal and child health services. At the present time, at least three other state agencies have insinuated themselves into providing primary medical services in this area, to wit, the Department of Education, Hospitals, and Public Welfare. But this does not tell the whole story. Since 1936, the aforementioned non-medically oriented agencies have embarked on a series of health programs in maternal and child health which dwarf in magnitude the funds expended and services rendered by the Board of Health. The Department of Education now (since 1948) operates the State School for Spastics (largely a medical problem), an extended psychological diagnostic, evaluative, and consultative service for children, physical and mental rehabilitative services for handicapped youth, nutrition consultative services, and a treatment and rehabilitation program for retarded children. The Department of Public Welfare operates a medical care program for indigent mothers and children, a consultative program for blind and partially blind preschool children, and licensing of child care institutions, day care centers and maternity homes. The Department of Hospitals (besides the services of the Charity Hospitals) operates the mental health guidance centers for children, the evaluation center for exceptional children, the inspection and licensing of private institutions caring for the mentally retarded, and treatment and rehabilitation schools for retarded children. This is a partial story of the fragmentation of a single health program area.

It is a well accepted maxim that health is everyone's concern and that everybody, one way or another, actively participates in its attainment or its impairment. The same can be said of every basic human need. However, concern and interest are not the only qualities required to be able to render health services competently. Knowledge and technology are the instruments for satisfying such basic human needs and these are possible only by special education and training. To provide for the health needs of a community, the two interdependent disciplines, medicine and ecological hygiene, must be applied. Therefore, the public health physician is, logically, the professional pivot around whom and through whom the planning and operations of such community health services should be administered. Nevertheless, it is proper and desirable that nonmedical educational agencies make the teaching of the principles of health an essential requirement in their curricula, and similarly that welfare agencies provide consultation for guiding their clientele in obtaining health services and in maintaining good health.

In the process of carrying out the primary function for which each social service agency was established, therefore, such agency has the additional responsibility of orienting its activities to support the attainment of optimum health for its clientele and for the community in which it operates. This interrelated participation in the broad field of human needs is the legitimate concern of every social service agency. This is not fragmentation and does not lead to fragmentation of community health services. But when an agency, whose primary function and orientation are in a field other than health, competes for and is successful in acquiring jurisdiction of programs in which the primary function is rendering health services, this is fragmentation, and the problem of competency must be investigated, if the public weal be our concern. Where health is involved, this certainly is the concern of the medical profession. Fragmentation is an evil—a serious maladministration of government.

Causes of Fragmentation

Since, in the past, few organizations or individuals have seriously studied the fragmentation of official community health programs, little has been written on the subject. The United States Public Health Service, for the most part under the leadership of Dr. Joseph W. Mountin, gathered the raw statistical data upon which this study is based and from which the statistical tables of this study were derived.

Dr. Mountin, a public health theoretician of note, in referring to the problem of fragmentation said that the "variation among States in assignment of responsibility for health functions is due in great measure to two main factors: Complexity of state governmental organization and extent of health services provided by the State." [2] Unless the term "complexity" be defined, the effect of this factor would be difficult to assess. If complexity of state governmental organization were an important cause of fragmentation, this complexity must have developed around the time of the passage of the Social Security Act when the significant rise in fragmentation began. Government organization has gotten bigger. Is this "bigness" to be identified with complexity? How does the complexity factor explain why government chose to disperse the assignment of responsibility for the new and enlarged health services among a variety of agencies instead of continuing to place this responsibility in its traditional health agency, the health department? And further, why did not a similar degree of fragmentation occur among social services other than health which also experienced rapid development with the passage of the Social Security Act? However, this period coincided with the consolidation of organized medicine's forces against government expansion of community health programs. Rather than the vague force of complexity, it appears that fragmentation was a consequence of the contention between government and organized medicine over the extension and expansion of community health services.

There is a need to recognize at this point that social history is a process of collective human effort manifested by quantitative growth or regression of society and qualititative development of social forms and functions, i.e., people, in particular relations to each other, contending under particular circumstances to produce their livelihood and shape their way of life in accordance to their unique aspirations, compose the process by which each episode in social history is made. Without embarking upon a philosophical dissertation on this subject, it can be predicated that society's ability to increase the amount of its health services derives from its general ability to increase its knowledge and technology, on the one hand, and to direct and control qualitatively the application of this knowledge and technology, on the other hand. In the field of health, much has been learned in the past half century. However, the application of knowledge for enhancing community health has lagged, particularly

since therapeutic medicine has become the object of this application.

The controlling forces in the application of medical knowledge and technology are, in the first place, the will of the community, and, in the second place, the will of the medical profession. Obviously, these two wills have not worked harmoniously in the same direction during the past four decades, and since the period of the great depression have clearly separated in different directions. The will of the community has sought to make therapeutic and rehabilitative services available for those sections of the population whose economic status would prevent or retard them from buying these services on the open market. The will of organized medicine has sought to maintain the rendering of these services as items freely purchasable on the open market, claiming that those who could not afford to purchase these services were already adequately being cared for. Of course, neither of these wills has been completely successful. The community was unable to establish in its governmental apparatus the full measure of health services it sought. Organized medicine was not successful in preventing the gradual but continuous addition of community health services in the system of governmental operations.

Parenthetically, it can be assumed with confidence that the high cost of medical services would not have brought so much disapprobation to physicians had the profession participated in a positive manner to plan and develop community health services in those areas where these high costs created the most obvious problems.

In the course of these developments, the following events combined to create the conditions leading to the fragmentation of health services:

1. The exclusive voice of private practice became synonymous with the voice of organized medicine.

2. The contention of organized medicine against government medical programs placed the public health physician in a precarious position in the eyes of organized medicine, and separated him from the confidence and congeniality of circles frequented by his confreres in private practice.

3. Organized medicine, in its contention with public opinion, lost its leadership in community health affairs; and the public health physician, not willing to violate his trust with his colleagues in private practice, also lost his leadership in the development and administration of community health services.

4. In an effort to improve its public relations with the community, organized medicine began to lend its support to voluntary health organizations.

5. The leadership of the voluntary health organizations was in consonance and unity with the leadership of the non-medically directed official social service agencies. Using this new strength derived from medical support, this combined lay leadership began to vie with health departments for the administration of medical programs. Thus, indirectly, the non-medically directed official social service agencies derived a vicarious support from the medical profession for taking over the administration of community health services.

6. Legislators became wearily accustomed to organized medicine's persistent negativism. They were not aware of the implications of legislating health programs into non-medically oriented agencies. Having lost contact with the silenced leaders of public health agencies, legislators became easy targets for the sentimental petitions of pressure groups to pass laws designed to aggravate the fragmentation of community health services.

7. The longer that organized medicine continues its policy of withholding support from or outrightly opposing health department program development in favor of non-medically oriented social service agencies, the more will conditions prevail for increasing and sustaining fragmentation of community health services, and for separating the medical profession from the planning and operations of these services.

The drive for extension and expansion

of community health services was the basic, and for the most part, the unavoidable, uncontrollable social factor contributing toward the development of fragmentation. But the growing struggle between organized medicine and government over this extension and expansion of community health services was the avoidable and the controllable social factor which the medical fraternity helped to create and which is more directly responsible for the fragmentation problem. Not only did this struggle incite to fragmentation, but it helped further to create and shape the recent history of the medical profession—a history credited for the estrangement of public health physicians from private practitioners for the consequent decline of the physicians' leadership in community affairs, and for making possible the taking over of health service administration by lay leaders and agencies.

No Substitute for Medical Leadership

As pointed out above, the AMA has made a special effort in recent years to ally itself with voluntary health agencies in order to change to a more favorable mold the "public image" of organized medicine, and to reduce the pressures for the development of governmentally organized community health programs.[3]

In the meantime, as if prompted by the spectre of the past, the incoming president of the AMA, in his inaugural address at Miami, June 1960, argued rather scathingly about governmentally operated health programs and government employed physicians.[4] Such maneuvering scarcely manifests concern for the public weal. It appears more as a diversive tactic in an obstructive strategy based on fear rather than a philosophy of humanism. To support voluntary health agencies against official health agencies is to encourage the engagement of these two against each other. This is similar to the easily discernable tactic of negatively approving health programs in non-medically directed agencies of government while positively disapproving such programs in health departments. Lay leaders in the non-medically directed agencies, official and voluntary, who understand the occasion of these maneuvers support these policies of organized medicine.

Yet, by these very policies, physicians are destroying their leadership in community health affairs and are immobilizing the forward movement of public health physicians. The physicians in medically directed government agencies, the only ones in a position to represent the medical profession in the government, appear to be the inculpated target of organized medicine. The scheme to enfeeble physician-directed health agencies in government is redounding insidiously to destroy the leadership of the medical profession as a whole. This is clearly demonstrated by the increasing growth of governmentally operated community health programs and the decreasing representation of medical leadership in these activities. Thus, the fragmentation of the unity of public health and private practitioners has lead to a fragmentation of community health services and the fractionation and destruction of medical leadership in community affairs.

If the medical profession believes that its interests are well looked after by having physician representation on various boards or advisory committees of non-medically directed agencies or even by having physician representation somewhere on the staffs of such agencies, its innocence in understanding the reality of things is surprisingly artless. For the good of the people and the medical profession, there is no substitute for medical leadership in health agencies of the government, particularly when this leadership is supported by organized medicine.

Dilemma and Impasse of Medical Profession

Except for the New Orleans Charity Hospital, the State Board of Health is the oldest state agency specifically created to administer medical and hygienic services. (The East Louisiana State Mental Hospital was established the same year, 1855.) Until the first World War, the State Board

of Health operated or played a leading role in the operations of practically all the community health services of the State except charity hospitals and institutions for the mentally disturbed. Up to that time, the State Medical Society and physicians generally supported and gave leadership to the state public health services. After the war, the development of socialized medical systems in Europe brought fear into the hearts of American physicians concerning health programs operated by government. About this time, the development of full-time county and municipal health departments began to burgeon on the American scene and in Louisiana, thus, increasing the number of full-time public health physicians. Because of the nature of their activities, these physicians soon became separated from their confreres in private practice.

The reverberations from abroad and developments at home therefore combined to create an atmosphere for nourishing suspicion and schism between the physicians operating government health programs and private practitioners. Under such strained relations, organized medicine lost interest in officially administered public health services and even derived a hidden satisfaction in contemning such efforts and achievements. Full-time public health physicians, fearing the sting and the indignity of isolation from their medical confreres in private practice, began to recoil from the traditional pursuit of aggressive planning and administration of public health.

By the time that the Social Security Act was passed, public health physicians were warily treading in troubled waters and reluctantly giving up their vigorous leadership to lay groups and agencies which, spurred to action by the void created by the medical professions' abdication, began taking over community health programs.

Although public health physicians, generally, shrank from touching community medical care programs, and organized medicine fought vigorously against them, these programs grew like mushrooms outside the sphere of influence of the organized will of the medical profession. In the meantime, the scientific and technological assault on the mortal and disabling communicable diseases increased in effectiveness. Their incidence rapidly decreased, some actually disappearing from our country. Consequently, those health problems of the public which, in the past, were more easily distinguished as belonging to the province of health departments, i.e., the prevention and control of communicable diseases, began to lose their importance in the eyes of the public. Caught in the movement of the campaign for developing medical care services in the chronic and non-communicable disease areas, health departments found themselves involved in the control and prevention of such diseases as pellagra, rickets, crippledness in children, dental caries, heart disease, cancer, and behavioral disturbances. But the methods of prevention and control of these diseases required a different approach than those required for most communicable diseases. In the control of tuberculosis and syphilis the sharp demarcation between prevention, control, therapeutics, and rehabilitation began to blur, whereas, for the chronic and non-communicable diseases, the distinguishable boundaries between these areas became lost completely.

However, organized medicine frowned on government getting into the field of therapeutics and rehabilitation. The public health physician, felt bound to respect the wishes of his confreres in private practice although it was becoming clear that reasonableness and logic were being replaced by the irrationality of fear. It also became clear that the voice of organized medicine reflected solely the fears of private practitioners, the health officers being left isolated and unrepresented in medical circles. The public health physician knew what needed to be done in the development of community health services to meet the changing needs of the people, but the fear of ostracism from the medical community froze him in the

posture of the past. His leadership in community affairs became dissipated, the void being gradually filled by lay leaders.

A Voice of Clarity Emerges

The tragedy of the medical profession's loss of leadership in community health affairs was now and then interspersed with sparks of regeneration. The latest evidence of this came to life in 1960 when a large body representing organized medicine, finally came forth with an unobstructed perspective and a fresh definition of the province of public health.

The Pennsylvania Medical Society auspiciously declared: "The theory and practice of public health has changed and expanded to include not only prevention of onset of illness, but also prevention of progress of disease, of associated complication, and of disability and death." [5] As a logical corollary to this, the president of the Pennsylvania Medical Society wrote: "In my opinion this Society enjoyed its highest peak of good will on the part of the citizenry of this State when it was actively supporting the public health program that it fostered. Let us win back the good will of the people of this State. . . . The Society should also turn its attention this year to the unification of the health services rendered by the State in its separate departments. There is no state in the Union that has such splintered health program services and responsibilities as has Pennsylvania. . . . Why shouldn't these services be the responsibilities of one department—that of Public Health. Splintering responsibility in this fashion only weakens the effectiveness of the services rendered and, therefore, leads to delay, wasteful spending, and frustrations." [6] This collective voice of logic and clarity from the physicians of Pennsylvania came not a day too soon. The Pennsylvania Medical Leadership appears to understand the problem.

Extent of Fragmentation

The full force of the present crisis was not felt until the period when the Social Security Act was passed. Since then, the fragmentation of community health services rapidly increased in every state of the Union.

Table 1 illustrates the extremities to which fragmentation has progressed in each state during the twenty year period 1930 to 1950. Louisiana's health services were among the most severely fragmented in the United States in 1950.

Table 2 graphically depicts in detail the process of health service fragmentation in Louisiana from 1930 to 1950. In 1930, the fragmentation was at a minimum. During that year, the State Board of Health had responsibilities in 33 health program categories. About 10 other state agencies, including various special boards or commission operated 10 services of various types in 6 health program categories. In 1940, the State Board of Health had responsibilities in 41 health program categories. During that year, however, about 20 other state agencies, including special boards and commissions, operated 36 services of various types in 21 health program categories.

In 1950, the State Board of Health had responsibilities in 48 health program categories, while about 34 other state agencies, including special boards or commissions, operated well over 100 services of various types in 37 health program categories. Thus, from 1930 to 1940, the number of agencies, other than the State Board of Health, that participated in community health services increased from about 10 to 20, and the number of health program categories in which they functioned increased from 6 to 21. This was a mighty leap forward in fragmentation in a ten year interval. Between 1940 to 1950, the increase in the number of "other" agencies participating in community health services was from about 20 to 34. During this decade, the number of health program categories in which other agencies participated sky-rocketed from 21 to 37.

At the same tempo, in the various health program categories, the number of services of various types operated by "other" agencies increased from 10 in 1930 to 36 in 1940, and to well over 100 in 1950.

TABLE 1

TABLE SHOWING THE DEGREE OF FRAGMENTATION OF COMMUNITY HEALTH PROGRAMS BASED ON THE NUMBER OF PROGRAMS OPERATED BY AGENCIES OTHER THAN HEALTH DEPARTMENTS AND ON THE NUMBER OF AGENCIES OPERATING SUCH PROGRAMS DURING THE 1930-1950 PERIOD

	Number of State Agencies Operating Community Health Programs			% Increase in Community Health Program Fragmentation, Using Number of Agencies Operating Health Programs in 1930 as Base			Number of Community Health Programs Operated by State Agencies Other Than State Health Department			%Increase in Community Health Program Fragmentation, Using Number of Health Programs Operated by State Agencies Other Than State Health Department in 1930 as Base.			Arrangement of States According to Degree of Fragmentation of Community Health Programs, From Least to Greatest, Based on the Number of State Agencies Operating Programs During the 1930-1950 Period	Arrangement of States According to Degree of Fragmentation of Community Health Programs, From Least to Greatest, Based on the Number of Programs Operated by Agencies Other Than State Health Department during the 1930-1950 Period	Arrangement of States According to Degree of Fragmentation of Community Health Programs, From Least to Greatest, Based on Both the Number of State Agencies Operating Programs and the Number of Programs Operated by Agencies Other than State Health Departments During the 1930-1950 Period	
	1930	1940	1950	1930	1940	1950	1930	1940	1950	1930	1940	1950				
Alabama	8	12	18	100	150%	225%	6	24	36	100%	400%	600%	Minnesota	Alaska	Minnesota	1
Alaska		6	16		100	266		10	22		100	220	Missouri	Maine	Missouri	2
Arizona	6	18	19	100	300	316	4	19	31	100	475	775	Wisconsin	Minnesota	Maine	3
Arkansas	10	10	35	100	100	350	4	17	84	100	425	2100	Tennessee	New Hampshire	Illinois	4
California	9	10	29	100	111	322	7	28	80	100	400	1142	Wyoming	Illinois	Alaska	5
Colorado	8	15	22	100	187	275	6	32	57	100	533	950	Illinois	Missouri	Tennessee	6
Connecticut	10	19	40	100	190	400	7	22	59	100	314	842	New Jersey	Rhode Island	New Hampshire	7
Delaware	7	10	41	100	142	585	4	13	55	100	325	1375	Maine	Nevada	Rhode Island	8
Florida	7	21	28	100	300	400	6	30	48	100	500	800	Rhode Island	Virginia	Wyoming	9
Georgia	6	12	18	100	200	300	3	26	49	100	866	1633	Washington	Tennessee	Wisconsin	10
Hawaii	1	7	18	100	700	1800	0	12	41	100	∞	∞	New Hampshire	Wyoming	Alabama	11
Idaho	7	9	16	100	128	228	4	12	29	100	300	725	Vermont	Oregon	Nevada	12
Illinois	10	13	17	100	130	170	9	41	46	100	455	511	Maryland	Alabama	Oregon	13
Indiana	8	10	24	100	125	300	8	35	56	100	437	700	Montana	Utah	Utah	14
Iowa	8	15	27	100	187	338	9	40	64	100	444	711	Alabama	Wisconsin	Virginia	15
Kansas	10	14	32	100	140	320	6	32	56	100	533	933	Idaho	North Carolina	Massachusetts	16
Kentucky	4	9	31	100	225	775	2	11	39	100	550	1950	Nebraska	North Dakota	Vermont	17
Louisiana	7	26	30	100	371	428	6	25	81	100	416	1350	Massachusetts	Massachusetts	Idaho	18
Maine	9	11	18	100	122	200	8	24	36	100	300	450	New York	Ohio	New York	19
Maryland	8	19	18	100	237	225	5	25	44	100	500	880	Utah	Indiana	Montana	20
Massachusetts	11	17	26	100	154	236	8	38	55	100	475	687	West Virginia	South Dakota	Nebraska	21
Michigan	7	14	29	100	200	314	6	34	66	100	566	1100	Oregon	Iowa	Maryland	22
Minnesota	12	14	10	100	116	83	9	44	42	100	488	466	Alaska	New York	North Carolina	23
Mississippi	6	9	22	100	150	366	3	14	43	100	466	1433	Colorado	Idaho	Washington	24
Missouri	10	12	13	100	120	130	7	16	37	100	228	528	Nevada	Vermont	New Jersey	25
Montana	8	18	18	100	225	225	5	20	41	100	400	820	Virginia	Nebraska	Ohio	26
Nebraska	6	8	14	100	133	233	7	18	53	100	257	757	Ohio	Arizona	North Dakota	27
Nevada	8	11	22	100	137	275	6	14	34	100	233	566	North Carolina	Florida	Indiana	28
New Hampshire	11	15	24	100	136	218	9	28	42	100	311	466	Georgia	Montana	Iowa	29
New Jersey	9	14	16	100	155	177	7	26	69	100	371	985	Indiana	Connecticut	Arizona	30
New Mexico	9	12	30	100	133	333	4	15	63	100	375	1575	North Dakota	Maryland	Colorado	31
New York	13	11	32	100	84	246	9	33	65	100	366	722	Michigan	Dist. of Columbia	West Virginia	32
North Carolina	9	14	26	100	155	288	6	20	38	100	333	633	Arizona	Pennsylvania	South Dakota	33
North Dakota	12	18	37	100	150	308	10	26	67	100	260	670	Kansas	Washington	Kansas	34
Ohio	10	17	28	100	170	280	9	47	62	100	522	688	California	Kansas	Florida	35
Oklahoma	7	13	31	100	185	442	4	24	65	100	600	1625	New Mexico	Colorado	Michigan	36
Oregon	11	14	29	100	127	263	8	28	47	100	350	587	Iowa	South Carolina	Connecticut	37
Pennsylvania	9	9	33	100	100	366	8	24	72	100	300	900	Arkansas	New Jersey	Pennsylvania	38
Rhode Island	8	10	16	100	125	200	7	28	39	100	400	557	South Carolina	West Virginia	California	39
South Carolina	6	10	21	100	166	350	4	11	38	100	275	950	Mississippi	Michigan	Georgia	40
South Dakota	6	11	22	100	183	366	5	19	35	100	380	700	Pennsylvania	California	South Carolina	41
Tennessee	9	9	13	100	100	144	7	19	40	100	271	571	South Dakota	Louisiana	Dist. of Columbia	42
Texas	6	13	29	100	216	483	4	17	79	100	425	1975	Connecticut	Delaware	New Mexico	43
Utah	5	11	13	100	220	260	6	14	37	100	233	616	Florida	Mississippi	Mississippi	44
Vermont	9	10	20	100	111	220	6	19	45	100	316	750	Louisiana	New Mexico	Louisiana	45
Virginia	9	12	25	100	133	277	9	34	51	100	377	566	Oklahoma	Oklahoma	Arkansas	46
Washington	9	14	18	100	155	200	6	25	54	100	416	900	Dist. of Columbia	Georgia	Delaware	47
West Virginia	10	14	26	100	140	260	5	36	53	100	720	1060	Texas	Kentucky	Oklahoma	48
Wisconsin	12	13	17	100	108	141	8	39	50	100	487	625	Delaware	Texas	Texas	49
Wyoming	8	12	13	100	150	162	7	18	41	100	257	585	Kentucky	Arkansas	Kentucky	50
Dist. of Columbia	4	28	19	100	700	475	3	39	27	100	1300	900	Hawaii	Hawaii	Hawaii	51
Total	412	673	1189				307	1263	2563	100	411	834				
State Average	8.24	13.19	23.31	100	160	282	6.14	24.76	50.25							

TABLE 2

DISTRIBUTION * OF COMMUNITY HEALTH SERVICES AMONG STATE AGENCIES IN LOUISIANA, ACCORDING TO TYPES OF PROGRAMS, 1930, 1940, 1950

	1930					1940							1950											
	State Board of Health	State Dept. of Education	T.B. Commission	Special Boards	State Board of Health	State Dept. of Education	State Dept. of Welfare	State Dept. of Labor	Special Boards or State Hospitals	Other State Agencies	State Board of Health	State Dept. of Education	State Dept. of Welfare	State Dept. of Hospitals	State Dept. of Agriculture	State Dept. of Institutions	State Dept. of Labor	State Dept. of Public Safety	State University	Wild Life & Fisheries Commission	Special Boards	Other State Agencies
Vital Statistics	x				x						x											
Laboratory Services	x				x						x				x			x				
Distribution of Biologicals	x				x						x											
General Communicable Disease Control	x				x	x			x		x			x	x							
Tuberculosis Control	x				x		x		x 1		x											
Venereal Disease Control	x				x				x 1		x			x 2					x			
Hookworm Control	x				x						x											
Pneumonia Control					x																	
Malaria Control	x				x						x		x	x 2								
Maternal and Child Health Services	x				x						x											
Maternity Hygiene	x				x				x		x											
Infant and Preschool Hygiene	x				x						x											
Midwife Control	x				x						x											
School Health Services	x	x			x	x					x	x		x 2		x			x			
Public Health Nursing	x				x						x											
Nutrition Services					x						x	x	x						x			
Handicapped Children's Services											x	x	x	x		x						
Crippled Children's Services					x						x	x	x	x 2								
Vocational Rehabilitation					x	x					x	x	x	x 2		x						
Dental Services					x		x				x	x	x	x								
Licensure for Health Reasons				x 3					x 3		x		x								x 3	
Cancer Control					x				x 1		x			x					x			
Heart Disease Control											x			x								
Diabetes Control														x								
Prevention and Treatment of Blindness	x				x				x 1		x	x	x	x 2					x			
Mental Health Services	x								x 1		x	x	x	x 2					x		x	
Arthritis and Rheumatism Services and Hygiene of Aging																						
Human Blood Program											x											
General Medical Care					x				x 2	x			x	x 2					x			x1
Accident Prevention											x	x			x		x	x	x			x2
Mosquito and Other Insect Control	x				x						x				x							
Pest Mosquito Control					x						x											
Rodent Control	x				x						x				x							
Ice Industry Hygiene	x				x						x											
Bottled Water Control	x				x						x											
Control of Garbage: Collection and Disposal	x				x						x											
Water Pollution Control					x						x				x				x	x	x	
Control of Water Supplies	x				x						x	x							x			
Control of Sewage Disposal	x				x						x	x							x			
Smoke, Fumes, and Odor Control	x				x						x											
Hygiene of Housing										x	x											
Plumbing Control	x				x						x										x	
Control of Hotels, Camps, Bathing Places, etc.	x				x				x		x											
Food and Drug Control	x				x						x										x	
Shellfish Sanitation	x				x						x									x		
Milk Sanitation	x				x						x				x				x			
Occupational Health Services											x	x					x					x
Industrial Hygiene								x			x	x					x					x
Swimming Pool Control	x				x						x											
Health Education	x	x			x	x					x	x	x	x	x	x		x	x		x 2	x1
Health Services for Migratory Labor																						
Workingmen's Compensation								x									x					
Alcoholism: Control and Rehabilitation																					x	
Hospitalization: General				x					x					x							x	
Hospitalization: Tuberculosis	x		x		x				x					x							x 1	
Hospitalization: Mental				x 1					x 2					x 3								
Expansion and Improvement of Hospitals, Health Center, and Nursing Homes											x			x							x	
Research	x				x					x	x			x			x		x			

* Source References: Health Departments of States and Provinces of the United States and Canada, Public Health Bulletin No. 184 (Revised),1932
Distribution of Health Services in the Structure of State Government, Public Health Bulletin No. 184 (Third Edition), 1943
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Biennial Reports Louisiana State Board of Health

1. Two Separate agencies
2. Three separate agencies
3. More than three separate agencies

Fragmentation, therefore, advanced at a dizzy pace in a score of years, and still continues unabated. The State Board of Health, originally organized as the State agency to deal with community health matters, is rapidly losing its intended function, while other state agencies are taking on responsibilities in areas in which they were not intended to function, and for which they are not organized or competent to act.

The more important events leading to further fragmentation of community health services in Louisiana since 1950 are outlined below:

1954—The program for establishment of evaluation centers for exceptional children was transferred to the State Department of Hospitals from the State Board of Health.

1954—The inspection and licensing of private institutions caring for and training the mentally retarded became a program of the State Board of Institutions, and in 1960 was transferred to the State Department of Hospitals.

1956—Mandatory supervision and licensing was established as a responsibility of the State Department of Public Welfare (non-mandatory authority was placed in this department in 1938) for the following:

a) Child caring institutions.
b) Independent boarding homes serving seven or more children.
c) Day care centers serving ten or more children.
d) Maternity homes.

1956—Inspection, supervision, and licensing of nursing homes was transferred to the State Department of Hospitals from the State Board of Health.

1957—The vendor medical care program was established in the State Department of Public Welfare.

1960—The Louisiana Commission on Alcoholism was transferred to the State Department of Hospitals.

1960—The Medical Care program for the aging population was established in the State Department of Public Welfare.

1960—Establishment of training, treatment, and rehabilitation schools for retarded children in Leesville, Ruston, and in Southeast Louisiana was authorized under the State Department of Hospitals.

1960—Establishment of a Structural Pest Control Commission was authorized to control, exterminate, and eradicate insects creating hazards to the health, safety, and welfare of the public. (This was, for over a half century, the province of the State Board of Health.)

1960—An appropriation of $680,000 to provide comprehensive services for the mentally retarded in day care and residential centers was given to the State Departments of Education and Hospitals.

1960—Act No. 263 was written in such a way as to make possible the legal violation of confidentiality of medical information and records.

Consequence of Fragmentation

In summary, fragmentation of community health services:

1. Isolates the preventive services from the therapeutic, the medical from the sanitary, and separates the rehabilitative services from the preventive and therapeutic; also, splinters each program area into a patchwork of disconnected, rambling services.

2. Makes coordination of agency health services an insuperable task due to the magnitude of the number of dissociated services needing coordination and the complex interrelationships required to combine harmoniously so many programs among so many agencies. (The administrative disadvantages of a little fragmentation can be overcome by cooperation, while the amount of time and effort and personnel required to overcome a great deal of fragmentation makes the term, "cooperation," a facade, cynically used, behind which to hide the organizational and administrative jungle in government.)

3. Creates confusion and chagrin among the people needing and applying for health services from such a disjointed complex of agencies.

4. Deteriorates the quality of services rendered.

5. Requires duplication of administrative organization and operative personnel which significantly increases the cost of services.

6. Stimulates rivalry between medically directed and non-medically directed agencies, and between the non-medically directed agencies themselves in their scramble to absorb other health programs.

7. Engenders expensive competition in the employment of personnel and the purchasing of hospital, medical, and other health services and facilities.

8. Exposes health records and medically confidential information to such a complicated system of interchange among a variety of agencies that the confidentiality of information exchanged between patient and physician breaks down.

9. Separates from the guarded influence of the physician the medically competent judgment and counsel required in the overall planning and in the daily ongoing administration of health programs.

A Program of Urgency

That a new approach to community health problems is an urgency for organized medicine is putting the problem mildly. The manner in which organized medicine reacts to community health programs, particularly those pertaining to medical care, will lay the basis for the future leadership status of physician in community affairs. Whether the medical profession will assure for itself a place of dignity and esteem in the future will be determined by its performance in the following critical areas:

1. Negativism toward governmentally organized community health programs must cease. The medical profession must become the pioneer in studying, proposing, planning, and participating in the administration and operation of health programs needed by the community.

2. In order to counsel wisely and act with sound judgment where the organizational and administrative nature of government agencies and health services are involved, the State Medical Society must charge a permanent committee with studying such problems. This committee, armed with accurate data could then mobilize efforts for promoting:

a) Sound health organization and administration by competently trained medical leaders.

b) Government action in reducing the fragmentation of community health services to a minimum and thereby (1) eliminating the waste of funds caused by duplication of administrative and operational personnel, and (2) increasing the quality and scope of services when necessary. Finally, after having simplified the machinery for rendering health services, the profession will be able more easily to expedite its watch and guard against further fragmentation, and against the introduction of undesirable program and practice into community health services.

3. The medical profession must be represented in government in order to protect the interest of the community while, at the same time, guiding the development and administration of community health programs in a direction satisfactory to the progressive evolution of the profession itself. The most plausible representative of the profession in government is the public health physician. The integrity of public health and the private practice of medicine must be achieved in order to regain the leadership of the physician in community health affairs.

4. The medical profession must take the initiative in studying the curricula of medical schools to be able to make recommendations for a teaching program that will indoctrinate medical students in a balanced understanding and appreciation of medicine and ecological hygiene, and the responsibility of the physician in the planning and operation of community health services.

5. In its already planned program for giving guidance to voluntary health agencies, organized medicine must be guided by the principle that voluntary health agencies are not competitors of government health agencies, but are, instead, the activating forces which spearhead campaigns of public health education and com-

munity health demonstrations of new programs made necessary by social changes.

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Protection Against Disease

It was reserved for this generation to claim for human health, supremacy over all material interests; lift sanitation to the dignity of a science, and to demand for the individual and for the nation, protection against disease.

The announcement of a new philosophy and the setting on foot of new devices for securing a longer life, arrested individual and governmental attention; and have opened up a new chapter in human history. It is in the interest of this movement that we are assembled in counsel today in the heart of the Mississippi Valley.

In the protection of the world's sanitation you will find enacted a higher law than any rules of lower courts which prescribe geographic lines as the limit of health measures and humanity's best being. Science outruns the surveyor and man's demand for life overlaps all lines born of a Jacob's staff and chain.

Speed, J. J.: Annual Address before the Sanitary Council of the Mississippi Valley in Session at Cairo, Illinois, April 20, 1882, New Orleans M. & S. J. 10:911, (June) 1882.

A Plea For Safe Administration Of Anesthetics*

• The author cites the most important factors that ensure the patient's protection from an anesthetic death.

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IT is my firm conviction that there is absolutely no excuse for an anesthetic death. Anesthetic deaths are due to (1) improper or inadequate preoperative preparation of the patient; (2) improper administration of the anesthetic; and (3) inadequate or improper postoperative care while the patient is recovering from the effects of the anesthetic. This discussion will be concerned primarily with the deaths due to improper administration of the anesthetic but a few words about the other two groups would seem pertinent.

The importance of proper preoperative preparation of patients, particularly the elderly and those considered poor surgical and anesthetic risks, is being stressed more and more in the current medical literature. This is, of course, only partly the responsibility of the anesthesiologist, but proper preoperative correction of such deficiencies as anemia, low blood volume and dehydration has considerably lowered the surgical mortality and morbidity rates. During the past several years it has been shown conclusively that adequate recovery room personnel can do much to prevent, if not eliminate entirely, many unnecessary deaths in the immediate postoperative recovery period.

It should be pointed out that the ideas expressed in this paper were formulated not only from experience during two years of residency training and four years of practice in the field of anesthesiology, but also from three years of residency training and two years of private practice in the field of urology. During my five years' experience in urology, anesthetics were administered to our patients exclusively by nurse anesthetists, so that my thoughts are based on observation of both anesthesiologists and nurse anesthetists.

What can be done to prevent deaths during induction and maintenance of anesthesia due to improper administration of anesthetic agents? The most important prerequisite is an adequately trained anesthesiologist. The best anesthesiologist is one who has genuine interest in the patient's welfare. If induction and maintenance of anesthesia is to be safe, the anesthetist must observe four requisites.

1. Maintenance of Adequate Airway

To me the most important requirement for safe administration of an anesthetic, but one apparently too often neglected, is maintenance of an adequate airway. Dr. Stuart Cullen's [1] remarks on this subject are particularly pertinent. He said that an attempt to strangle a person outside of an operating room is a criminal offense, and yet day after day, patients are "strangled" in operating and delivery rooms under the guise of anesthetization but no arrests are made. Despite Adriani's [2] statement that noisy respiration is obstructed respiration, day after day, some anesthetists not only tolerate noisy respiration but allow it to persist for indefinite periods of time. There is no substitute for judgment and experience in maintenance of a good airway, and the anesthetist who has not mastered this art cannot administer anesthetics safely.

* Presented at the Eightieth Annual Meeting of the Louisiana State Medical Society, May 4, 1960, in Baton Rouge.

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A perfect airway can usually be maintained without intratracheal intubation. This procedure should be reserved for those cases in which it is truly indicated and must be performed by one skilled in use of the laryngoscope. It should, however, be emphasized that when indicated intratracheal intubation should be employed without hesitation. Compromise in maintenance of an airway will lead to hypoxia and hypercarbia, which are unmistakably the forerunners of cardiac arrest. In this connection, I cannot emphasize too strongly the fact that partial or slight obstruction for a long time is just as hazardous as complete or severe obstruction for a short time, particularly from the standpoint of production of hypercarbia.

2. Close Observation of Anesthetized Patient

No one requires such a close, constant observation as does the anesthetized patient. This has been appropriately expressed by Muller,[3] who said:

> "*Death* treads on the heels of pain-allaying substance, and if the doctor wants to relieve pain he must come to terms with death. A narcotic (or anesthetic) works only by throwing the patient into an artificial sleep which is death's own brother; only by carefully devised means can the doctor save from death those whom he has rendered insensitive to pain. Every doctor who relieves pain must measure his strength and skill with *Death*."

It is indeed appalling to discover the number of anesthetics administered every year during which not even the patient's pulse rate or blood pressure is recorded. This is not directed at cases of open-drop ether administered to infants and small children but rather to the alarming number of minor operations on adults carried out with use of sodium pentothal-nitrous oxide anesthesia without even taking the patient's blood pressure. There is no such thing as a minor anesthetic. Every general anesthetic is a major anesthetic regardless of duration, type or quantity of the agent used. I do not believe it is possible to determine the status of the circulatory system during "pentothal-anesthesia" without use of a blood pressure cuff. In contrast to Beecher and Todd's [4] report implicating curare as the leading producer of anesthetic deaths in this country, a recent survey showed pentothal to be the main offender in Great Britain. The British,[5] therefore, concluded, "Pentothal is fatally easy to give." This appears to be sufficient evidence to state conclusively that pentothal should never be given without constant close observation of the pulse rate, respiratory rate, and blood pressure.

This constant close observation is mandatory regardless of the anesthetic agent used. As further indication of the individual contrast in the way in which anesthetics are being administered in this country, many anesthetists are not content with the constant monitoring of pulse, respiration, and blood pressure to determine planes of anesthesia but in addition advocate continuous use of the electrocardiogram and electroencephalogram.

Equally disturbing in present day anesthesiology are the numerous anesthetic records in which the pulse and blood pressure are recorded only at intervals of ten or fifteen minutes, if at all, even though from the record it was quite obvious that during these intervals the patient was exhibiting such manifestations as severe hypotension, tachycardia, or unexplained apnea. Safety in anesthetization demands that the pulse rate be taken as continuously as is possible and that the blood pressure be taken at least every five minutes during induction and maintenance of anesthesia. Further, if the plane of anesthesia is deepened, if the position of the patient on the operating table has been changed, or if there is any tendency to hypotension, hypertension, bradycardia, tachycardia, or unexplained apnea at the last reading of pulse and blood pressure, these readings should be repeated at one or two minute intervals until the anesthetist is definitely assured that the patient's condition is satisfactory. Only by such constant close monitoring of the pulse and blood pressure can impending cardiac arrest be detected, and the only

treatment of cardiac arrest, which is always satisfactory, is prevention of cardiac arrest before it occurs.

It is unfortunate that the anesthetist has only two hands, for he certainly could use several more in order *constantly* to palpate the pulse, hold the chin up to maintain an airway, assist or control respirations, administer open-drop ether, *intermittently* check the blood pressure, record all these findings on the anesthesia record, regulate various intravenous drips, inject intravenous medications and *occasionally* put up the ether screen, adjust the light or manipulate the operating table. The well-trained anesthesiologist knows which of these duties is most important and should occupy his hands at any given moment, but it seems that there is in our country today an individual who may be called a "no-hand anesthetist." For shortly after induction of anesthesia he proceeds to do anything with his hands except use them for the numerous necessary duties. This individual is a definite menace to safe administration of anesthetics.

3. Choice of Anesthetic

Anesthetic deaths are probably never the direct result of the anesthetic agent with the rare exception of cases of ventricular fibrillation occurring during induction with cardiotoxic agents, such as chloroform, ethyl chloride and trilene. Anesthetic deaths blamed on certain anesthetic agents almost always are caused by the anesthetist in one of the following ways. An agent was administered (1) in a way or for a purpose in which it was never intended to be used, (2) without adequate knowledge of its actions and contraindications, or (3) in toxic quantities, or more simply in overdosage. It should be remembered that every anesthetic agent is a poison and should be administered in the smallest amount that is necessary to satisfy the surgeon's requirements. Too often it is stated that a patient would not tolerate or was allergic to a certain anesthetic agent, whereas in most of these cases, the patient's reaction was the result of ignorance or lack of technical skill on the part of the anesthetist.

The following incident is an excellent example of how *not* to administer an anesthetic safely. Several years ago an "anesthetic death" occurred in a normal, healthy 17 year old girl undergoing tonsillectomy in a North Carolina hospital. "Anesthesia" was induced by intravenous administration of sodium pentothal and curare without benefit of intratracheal intubation or infiltration of a local anesthetic agent. This was an "anesthetic" death in which a true anesthetic agent was not used at all. Pentothal is nothing more than a hypnotic. It has no analgesic properties; thus it cannot be classified as a true anesthetic agent. It is quite true that pentothal can produce a state comparable to anesthesia by placing the patient under deep hypnosis with its attendant pronounced depression of circulation and respiration. However, I do not believe pentothal should be used for this purpose. Rather it should be used to induce and maintain light hypnosis along with another agent like nitrous oxide, ethylene, or cyclopropane, to produce the analgesic action necessary for anesthesia. In the case just cited pentothal had been used to produce a state of deep hypnosis with resultant severe depression of circulation and respiration; curare had been used to depress respiration further, and without control of the airway, hypoxia and hypercarbia had been well established. In other words, the anesthetist had satisfied all the requirements for the production of cardiac arrest!

Certain general practitioners in this country doing obstetrics, whom I like to call "arm-chair anesthesiologists," are in the habit of having the obstetrical nurse hold the Duke Inhaler for Trilene over the patient's face to produce anesthesia so that they may carry out delivery and repair with the patient anesthetized. Trilene should never be used to produce obstetrical anesthesia and instructions that come with the Duke Inhaler specifically state that it is to be used only for the

production of trilene analgesia. This is another example of use of an agent in a way in which it should never be used.

A nurse anesthetist is not expected to have a thorough knowledge of human physiology, biochemistry or pathology but she certainly should have a reasonable knowledge of the pharmacologic actions of every anesthetic agent or adjunct which she uses. In addition, she should know exactly what effect each agent is expected to have on the bodily systems. One should never use an agent about which he knows little or nothing simply because one of his colleagues has used this agent without difficulty.

A few words about muscle relaxants would seem pertinent here. The muscle relaxants are wonderful adjuncts to smooth, well-conducted, safe, general anesthesia. They should never be used as a substitute for good anesthesia and they are all too frequently used to cover up poor anesthesia. Obviously, muscle relaxants should never be used by individuals not thoroughly acquainted with their actions, and not capable of dealing with complications that may arise. The contraindications to the various anesthetic agents are listed in standard textbooks on anesthesia.

Every anesthetic agent has its own margin of safety, that is, the difference between the concentration necessary in the body to produce surgical anesthesia and that necessary to produce death. If the anesthetist knows the agents and watches the patient carefully, he should never be guilty of causing an anesthetic death by overdosage.

4. Restraints and the Explosion Hazard

Nothing is more disconcerting and unnecessary than to have a patient fall or jump off a table or stretcher during the induction of, or recovery from, general anesthesia. The patient should always be well restrained before induction of general anesthesia regardless of the anesthetic used and the anesthetist should always be prepared to meet and deal effectively with recovery excitement. Prevention is the only treatment for excitement accidents due to an anesthetic.

I hope all of you have had an opportunity to see Dr. George Thomas's demonstration or moving picture on explosion hazards in the operating room.* For those who have witnessed it, no further discussion of explosion hazards is necessary; those who have not seen the demonstration are strongly encouraged to do so, for it is more effective than any description can be.

Conclusion

In conclusion, it may be reiterated that anesthetic deaths are absolutely inexcusable. If the four requisites for safe induction and maintenance of anesthesia, that is, maintenance of an adequate airway, close observation of the patient, correct choice of anesthetic and proper institution of restraints and explosion precautions are observed, the mortality rate from induction and maintenance of anesthesia will be minimal.

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Discussion

Dr. A. J. Ochsner (Alexandria): It is with great pleasure that I discuss this well prepared and thoughtful paper of Dr. Welborn. I believe that he has very adequately covered the innumerable duties of the anesthesiologist in the safe administration of an anesthetic—duties which must be performed in order that the administration may be considered safe.

I prefer the last sentence of his conclusion, namely "the mortality rate from induction and maintenance of anesthesia will be minimal" to the expression that "anesthetic deaths are absolutely inexcusable." I believe that there may be

* Each year Dr. Thomas presents this demonstration in various parts of the country. The moving picture may be obtained from Abbott Laboratories, Chicago, Ill.

such a thing as a true accident over which only The Great Physician has control. It is, however, or should be, inexcusable to improperly administer anesthetics. We strive constantly to improve our knowledge, our drugs, and our abilities and work in what we believe to be the direction of Utopia—in this case—no death from anesthesia.

I believe that more emphasis should be put on the preoperative preparation of the patient and the postoperative handling of the patient than can possibly be presented in such a short discussion. These two factors hold roles of absolutely major importance in the safe guidance of a patient from entrance into a hospital to the patient's happy trip home.

I would like to commend Dr. Welborn for his timely presentation of this important plea for safety.

The Red Cross of the Geneva Convention

We do not conceive that we can better set forth the nature, object and origin of this association, than by extracts from this little pamphlet whose title heads this page, allowing it to speak for itself of its character, its principles, and its method of work. It is not a vague plan of what maybe, but the sketch of an association in full and active organization throughout all of Europe and parts of South America and Asia. It has received the governmental sanction of thirty-two of the nations of the civilized world, the United States of America giving its adherence to the Geneva Conference on March 1, 1882. Its power to really and practically ameliorate the horrors of war were signally proved in those wars which have occurred in Europe, since the organization of the society in 1863.

New Orleans M. & S. J. 10:943 (June) 1882).

Cardiac Rupture and Hemopericardium Following Myocardial Infarction*

• The incidence of myocardial rupture while rare is by no means a pathological curiosity. The incidence in the present report from Touro Infirmary during a ten year period was almost 1 per cent of all autopsies and 6 per cent of all autopsied myocardial infarcts.

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MYOCARDIAL infarction is a common present day illness, and with an increasing number of older people in the population the incidence will probably increase. The patient with myocardial infarction may fall heir to many complications, one of which is rupture of the myocardium.

This condition has stimulated the interest of physicians since the time of William Harvey [1] who, in 1647, was the first to describe it. He and subsequent writers thought that myocardial rupture was a result of fatty metamorphosis of the heart. It was not until 1861 that Malmsten [2] first described myocardial rupture resulting from infarction of the myocardium. Since that time an ever increasing number of cases have been reported. Krumbhaar and Crowell [3] in 1925 collected 734 cases from the literature. Many cases have been added since then.

Material

This paper is a study of 20 autopsied cases of ruptured hearts following acute myocardial infarction that occurred at Touro Infirmary during a ten year period from 1950 through 1959. All of the cases of rupture were complete ones with an associated hemopericardium. Figure 1 shows a large perforation of the anterolateral surface of the left ventricle.

The twenty cases of rupture were studied both clinically and pathologically. A like number of fatal autopsied cases of non-ruptured myocardial infarcts were also studied and used as a control. Particular attention was paid to blood pressure, heart failure, exertion, age of the infarcts, fibrosis and drug administered. The twenty cases of rupture were then compared to the control and both compared to the literature.

Figure 1—Showing large perforation of anterior surface of left ventricle.

* Presented at the Eighty-first Annual Meeting of the Louisiana State Medical Society, May 9, 1961, in New Orleans.

From the Department of Pathology, Touro Infirmary.

Incidence

During the ten year period under consideration 2,770 patients were admitted to Touro Infirmary with a diagnosis of acute myocardial infarction. Of these 731 died of their disease which gives a mortality of 26.3 per cent.

The incidence of myocardial rupture in large autopsy series ranges from 0.04 to 1.09 per cent.[1-5] The incidence at Touro Infirmary was 0.84 per cent. Table 1 shows that 6.0 per cent of myocardial infarcts in our series coming to autopsy had ruptured. This compares in general with percentages from the literature. Cardiac rupture is slightly more common in mental institutions [4] and Coroner's series. The apparent reason for this is the large number of "silent infarcts".

Age and Sex

The age in the ruptured groups ranged from 53 to 80 years with an average of 65.8 years, while in the control it varied from 46 to 89 years with an average of 62.4 years. No significant difference exists between these two groups. This is in keeping with the literature [1, 3, 5] that cardiac rupture in younger individuals is more apt to be in the atria and associated with trauma.

TABLE 1
PERCENTAGE OF INFARCTS THAT RUPTURE

Author	No. infarcts	No. rupture	% rupture
Edmondson [2] Hoxie	865	20	3.4
Bean [6]	283	17	6.0
Wartman [7] Hallerstein	150	6	4.0
Wang [8] Bland White	556	23	4.1
Zinn [9] Cosby	679	34	5.0
Touro	329	20	6.0

In the ruptured group there were 10 males and 10 females while in the control there were 13 males and 7 females. Here, too, there is close agreement with the literature. Most series [3, 6, 10] contain an equal number of the sexes while Cecil and Loeb [11] state that myocardial infarct affects males 6 times more frequently than females.

Age of the Infarct

Utilizing the clinical record of the two groups the duration of the infarct was estimated. Multiple histological slides were then studied and the age again estimated independently of the clinical record. All cases were placed into age groups comprising 1 to 3, 4 to 7, 8 to 11 and 12 to 14 days. In judging the histologic age of myocardial infarcts, the criteria of Mallory, White and Salcedo-Saljor were used.[10]

For the first six to eight hours following occlusion of a coronary artery there is no histologic change in the cardiac muscles. The first change is an increased pinkness of the muscle fibers. Very soon after this there is pyknosis of the nuclei. The muscle striation is still present but difficult to see. These are soon lost, however, and at the same time there is beginning neutrophilic infiltration. At about twelve hours this is mainly perivascular but soon infiltrates the entire area of necrosis but remains rather sharply limited to it. At this same point there is evidence of interstitial hemorrhage. At about two days following infarction the neutrophilic infiltration is quite heavy and some begin to show necrosis. Even though some become necrotic at two days the neutrophilic invasion continues and reaches its peak in four days.

At approximately the fifth day there is beginning proliferation of fibroblast and capillaries. This is at first slow and limited to the edge of the infarct. At about eight to nine days the connective tissue is fairly prominent. A characteristic of this tissue is that it stains light blue as does all young connective tissue. At about ten days macrophages make their appearances and rapidly increase in number. These macrophages contain a brown pigment, lipofuscin, which is derived from the necrotic muscle. By the end of the second week these macrophages have removed about 1 mm. of dead muscle from

the edge of the infarct. As healing progresses the fibrous tissue becomes more dense and becomes collagenized. This process continues and by two to three months there is the formation of a dense scar. The adequacy of the remaining circulation and the size of the infarct may alter and prolong this time sequence. Wessler, Zoll and Schlesinger, using a special injection technique,[12] demonstrated that collateral circulation was incomplete or absent in areas of rupture while the same was not true of unruptured infarcts. Large infarcts heal much slower than smaller ones. It takes some time for macrophages to penetrate the center of a large infarct so that necrotic muscle may persist for a long time.

Table 2 shows the correlation between the clinical and histologic age of the infarcts. Notice that this correlation is good in the ruptured groups. Only in cases No. 6 and No. 20 were there any wide discrepancies. In this group the clinical age was more clear-cut with a definite time of onset of symptoms. The correlation in the control group is poor. Clinical ages could frequently not be obtained from the records. The onset of the infarct symptoms is frequently lost in a hodgepodge of old cardiac symptoms. This is in keeping with some authors [12] who found that old infarcts, angina, and prior episodes of heart failure were more common in the non-ruptured group.

The difference in the amount of fibrosis present in the two groups is significant. The usual cause of this fibrosis is a preceding infarct. It appears that fibrosis protects the myocardium from rupture.

Table 3 shows the number of ruptures occurring and different days after infarction. The great majority occurred during the first two weeks with 70 per cent of these occurring during the first week. In our series 70 per cent occurred during the first week and all occurred within the first eleven days. Maher, Mallory, and Laurenz [4] found that over 50 per cent of their series ruptured within the first five days and Edmondson and Hoxie found that 98.5 per cent occurred within the first sixteen days.

Heart Failure

In the ruptured groups, 35 per cent had heart failure associated with their infarct compared to 5 per cent in the control

TABLE 2
CORRELATION BETWEEN CLINICAL AND HISTOLOGICAL AGE OF MYOCARDIAL INFARCTS

	RUPTURED			UNRUPTURED		
No.	Clinical Age—Days	Histological Age—Days	Amount of Fibrosis	Clinical Age—Days	Histological Age—Days	Amount of Fibrosis
1	4	1-3	0	3	1-3	0
2	1	1-3	0	11	11-14	+3
3	6	1-3	0	9	1-3	0
4	2	1-3	+1	?	4-7	+3
5	9	11-14	0	?	8-10	+3
6	1	11-14	0	?	1-3	0
7	8	11-14	0	3	8-10	+2
8	7	4-7	0	?	8-10	+3
9	11	11-14	0	2	11-14	+3
10	5	1-3	+3	5	4-7	+2
11	7	4-7	0	?	11-14	+3
12	2	1-3	0	?	11-14	+3
13	6	4-7	0	?	1-3	+2
14	1	1-3	0	?	1-3	0
15	1	1-3	0	1	1-3	+2
16	10	8-10	+2	2	1-3	+3
17	10	11-14	0	7	14	+1
18	1	1-3	0	2	1-3	+2
19	1	1-3	0	7	4-7	+3
20	11	1-3	0	?	11-14	+2

TABLE 3
DAY OF RUPTURE OF INFARCT

Author	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Beyond
Mallory [10]															
White															
Salcedo-Saljar	2	1	2	1		4	1		1		1	1		1	
Bean [6]	1	3	1	2	1		3	1				2			1
Wessler [12]															
Zoll															
Schlesinger		2		3	3	2	1	2	1	2	1				2
Maher [4]															
Mallory															
Laurenz	5			3	3	1	1	3		1					2
Touro	5	2		1	1	2	2	1	1	2	2				

group. Prior episodes of heart failure have been found to be less frequent in the ruptured group.[12] In this series 10 per cent of the ruptured cases had such a history, while it was obtained in 35 per cent of the unruptured group. The prior episodes of failure may protect the myocardium by stimulating fibrosis.

Drugs

Various drugs are administered to patients with myocardial infarcts, such as digitalis, diuretics, antibiotics, anticoagulants and Levophed. The question arises whether there is any relationship between drug therapy and ruptured infarcts.

Table 4 shows the number of patients in each group who received these drugs. Notice that digitalis, diuretics, and antibiotics are more common in the control group while the opposite is true of anticoagulants and Levophed.

A relationship between Levophed and myocardial rupture may be explained by the increased work of the heart caused by the increased peripheral resistance. Anything that increases intraventricular pressure or work load will increase myocardial rupture in an infarcted heart.

A relationship between anticoagulants and rupture, however, is difficult to explain. There is no uniform agreement in the literature that anticoagulants are associated with an increased incidence of rupture. Experimental work in dogs [15] failed to demonstrate any adverse effects of anticoagulants when used in myocardial infarction. Some authors [4, 16] in clinical studies have failed to find any increased incidence of rupture following anticoagulant therapy. To be significant the anticoagulant therapy must have been effective at the time of rupture; that is, the prothrombin time must have been in the therapeutic range. Many reports do not give this information and are therefore difficult to evaluate. In a recent study of this problem Lange and Aarseth [17] reported on 69 patients with rupture and effective anticoagulant. Compared to a control group the incidence of hematopericardium was twice as large in the anticoagulant group as compared to the control. Although this group is too small to draw a general conclusion, it is in close agreement with some of the literature.

Blood Pressure

Edmondson and Hoxie, in 1942, demonstrated that hypertension which persisted after infarction was associated with a greater number of ruptures. Since then their findings have been substantiated. Six cases or 30 per cent of the ruptured group had persistent hypertension com-

TABLE 4
EFFECTS OF DRUGS ON RUPTURE

	Digitalis	Diuretics	Antibiotics	Anticoag.	Levophed
Ruptured Infarcts	7	6	2	9	8
Control Group	10	14	6	3	4

pared to 20 per cent of the control group. The difference between these two groups is smaller than usually found.

Exertion

The amount of exertion a patient undergoes is very difficult to evaluate. Restlessness, agitation, vomiting, coughing and belching are only a few of the more common forms of exertion to which infarcted patients are submitted. It is generally agreed that exertion, especially when the cardiac muscle is most necrotic, is correlated with a high incidence of cardiac rupture.

In the ruptured group there were 6 cases which had some form of increased activity. This varied from repeated vomiting to complete ambulation. In the control group there were 5 cases with some increase in amount of activity. The rather close similarity between these two groups points up the fact that the pathogenesis of cardiac rupture is complex and many different factors are involved.

Summary

1. The incidence of myocardial rupture while rare is by no means a pathological curiosity. The incidence at Touro Infirmary for a 10 year period was almost 1 per cent of all autopsies and 6 per cent of all autopsied myocardial infarcts.

2. The ratio of men to women in ruptured hearts is approximately 1 to 1.

3. Rupture is most apt to occur during the first week following infarction. In this series 30 per cent occurred on the first day and 70 per cent occurred during the first week.

4. Fibrosis is more common in the unruptured heart.

5. Prior episodes of heart failure are more common in the unruptured heart.

6. No correlation between most drugs administered and rupture could be established except for anticoagulants and Levophed which probably are associated with an increased incidence of rupture.

7. Persistent hypertension and exertion are definitely more common in the ruptured group.

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Discussion

Dr. Sam A. Threefoot (New Orleans): This presentation makes several points related to the therapeutic management of the patient with myocardial infarction. The first is the reemphasis that the first several days following a coronary occlusion are the most critical in the prognosis of the patient. While it is difficult to correlate exertion with myocardial rupture, this paper supports the generally accepted form of management of complete rest during the period when the cardiac muscle is most necrotic and before fibrosis has developed to a "protective" degree.

A second point is more controversial, and con-

cerns the continuing polemic on the routine use of anticoagulants in the management of myocardial infarction. A paper such as this offers some support to those physicians who wish to be more selective in their use of anticoagulants versus those who use them routinely in every myocardial infarction. Lange [1] and others have reported that hemorrhagic pericarditis or hemopericardium occurs at least twice as frequently in groups treated with anticoagulants as in non-treated groups. This is probably of greater importance to the clinician than rupture, because the mortality is lower. While a recent court decision seems to legislate the use of anticoagulants in myocardial infarction, some selection of cases for this type of therapy is in order, particularly since rupture occurs more commonly in the "first" infarct—the same group in which thromboembolic phenomena occurs less commonly.

The presence of hypertension and use of norepinephrine both have occurred 50 per cent more often in the ruptured group than in the controlled group. Whether or not to use norepinephrine is probably a more difficult decision to make than whether or not to use anticoagulants, since the use of norepinephrine is generally reserved for those patients in cardiogenic shock, who if not treated carry a poor prognosis.

Of further clinical interest is the diagnosis of myocardial rupture and hemopericardium. As pointed out by Sigler,[2] diagnosis of rupture of the free wall is more difficult than that of rupture of the intraventricular septum. Rupture should be suspected, however, in an acute myocardial infarction if the patient has hypertension, is over fifty years of age, who suddenly goes into complete shock and does not respond to therapy, more particularly if the infarction is on the anterior wall. One may observe a loud systolic murmur and thrill in the fourth and fifth left interspaces close to the sternum just before death. It is infrequent, however, that physical diagnosis is performed at the proper time to detect the findings. The signs due to cardiac tamponade are not uncommonly detected. There is narrowing of the pulse pressure, cyanosis, distention of the neck veins, tachycardia, and of course shock associated with rupture which may obscure the picture due to marked sudden circulatory collapse.

The patient with rupture of the intraventricular septum may live for a long time, however. This is characterized by shock, sudden development of a harsh loud systolic murmur over the entire precordium with maximum intensity at the left third interspace close to the sternum and frequently with a palpable thrill. The heart becomes dilated and the picture of right ventricular strain dvelops if the patient survives.

Hemopericardium in nonfatal cases may be recognized by the usual signs of cardiac tamponade, (narrowing of the pulse pressure, shock, tachycardia, enlargement of the cardiac shadow, parodoxical pulse), venous distention with the increased venous pressure and possibly friction rub, cyanosis and signs of congetive heart failure.

For the nonfatal cases of intraventricular septal perforation or of hemopericardium, treatment consists of prolonged rest, proper use of digitalis and diuretics and other symptomatic therapy, such as drugs for pain and pericardial tap to relieve tamponade and avoidance of unnecessary drugs.[3]

Since we are unable to treat the ruptured free wall, and this is invariably fatal, prophylaxis is the best management. This means judicious selection of those patients in whom anticoagulants are to be used and avoidance of drugs designed to raise the blood pressure unless actual shock endangers the life of the patient. A mere drop in blood pressure without shock should not seduce the physician into using drugs such as norepinephrine . . . particularly in the patient over 50 years of age, with previous hypertension and an anterior infarct for the first time.

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The Nervous Woman

Her impact on industry; Her devious delinquency in the home. Who is she, and what may be done about her?

• Her industriousness is not challenged, either by opportunities at home, or capricious loyalty to the industrial orb. Her desires are not met, in the voracity that "plethora of things" has engendered, in the adequacy of male dominance that St. Paul enjoined when he said, "Wives, submit yourselves unto your husbands . . . for the husband is the head . . . "

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IT is audacious that a mere man presume to speak about mere woman, ever —but a nervous man is just plain foolhardy when he dares to talk about the nervous woman. George Eliot once said, "The happiest women, like the happiest nations, have no history." The reverse is true of the nervous woman, for she, like the uneasy nation, has manifold complaints and symptoms of unrest.

A man may get *in* trouble and seek aid. A woman *is* troubled, so for this reason so often she comes for help.

The psychobiologic unit of standard nomenclature gives us the psychiatric patterns and variants of mental and emotional illness. With these we are and should be more or less familiar. But, my purpose today is to side-step the areas of organic disease and psychotic behavior, and speak in the generalizations and simplifications that become the *modus operandi* of the general practitioner. For his success with nervous and emotional problems so often depends on how well he can translate phychiatric complexity into the everyday language and experience of his nervous patients.

The Term Described

Nervousness is a quality of behavior. It is a symptom-complex of underlying emotional mismanagement. It is the undesirable pattern of reaction and response to stimuli, unwelcome situations or conditions. Nervousness may be a compensatory mechanism revealing inadequacy, immaturity, or it may be evidence of the gap between desire and fulfillment; between ambition and attainment. Nervousness may also result from the static overflow of supercharged psychic energies that are poorly expended or utilized. This might be compared to the poor performance of the overtrained athlete, or to the rotting of surplus fruit when harvest hands are inadequate.

The nervous woman comes to us for treatment; for relief. She is agitated, apprehensive, tense, fearful and easily upset. She may laugh—or cry—or both. She may dwell with vague intensity upon visceral troubles, or she may deny altogether any element of illness, with the generality, "I'm just nervous."

All of us have seen her, and as I have implied, she is an unhappy woman. In our innermost thoughts we may agree with her. She is a *nervous* woman.

In Industry

For nearly twenty years I have spent part of each day in the first aid room of an industrial plant that employs a fair number of women. I have found there the same relative proportion of the problems of nervousness in relation to those we class as definitive or organic, requiring specific or routine treatment.

Expressed in another way, 75 per cent of the women who report have complaints that reflect anxiety or tension. These

have problems that arise from situations of stress. Acceptance is lacking, adaption is inadequate and interpersonal relationships are poorly managed.

In still another way, it has been shown that about 20 per cent of the women employees take up most of the time that comprises their utilization of first aid services.

These facts lend weight to the statement that "mental illness" is industry's greatest headache and health problem. A few of these women may undeniably have serious psychiatric illness, but the majority of them are simply called, "nervous".

What does this mean to industry? To the job?

During the second world war there was a tremendous increase in employment of women in positions of all types, many once held to be the exclusive domain of men. In most cases they did a magnificent job. Motivation was strong, the common cause was unifying, objectives were fundamental and satisfying.

From the experiences of those years industry learned much of the capacity and usefulness of women. And women, for their part, learned much of the increased opportunities for self-realization and greater emancipation from male dominance. There derived also greater awareness of competitive potential for economic ascendency which stimulated the realignment of relative and absolute values of man and woman in the home, in industry, in politics, and in practically all other relationships except the biological. I need not remind you, we see rebellions even in that area.

Industry also learned that in a variety of jobs, women could do certain types of work as well as, or even better than men, and for less pay. More women could be put to work in smaller space, at benches or on the assembly line, for men seemed to require more space and freedom to move about. Women seemed to withstand the monotony of repetitive jobs better and to seek promotion or change less aggressively.

However, since the war, even though the movement of women from the home to positions in industry and in the business and professional world has continued, with many the motivations and perspectives have reverted to those forces associated with immaturity and need for escape.

In short, industry finds itself with many who do not seek work for work's sake; who feel little or no loyalty to the company which employs them. These women are forced by circumstance to become gainfully employed: single women, divorced women, women with invalid husbands or those trapped by mitigating circumstance, whose preference would be to remain in the home. By contrast, and added to those ranks, are the women who could and should remain in the home, but who dislike housework, who are literally running away from those responsibilities, from dependency on male dominance, and from the loneliness and isolation that the home means to some.

In the industrial clinic, I am impressed by the number of nervous women who complain of intolerable situations in the home. Dominant parents or in-laws may create tensions; alcoholic or indolent husbands contribute to a feeling of necessity and insecurity. In this particular reference, may I add that a surreptitious inventory revealed that at least 14 per cent of the women in one industrial area had husbands who were alcoholic. This is far higher than the national average for the general adult population, and is certainly of interest sociologically.

All the foregoing factors are met in the general survey of possible etiological significance of background in the understanding of the nervous woman.

Foremen, supervisors, personnel directors and employers also have become acutely aware of the problems of the nervous woman reflected in absenteeism, unreliability, unpredictable behaviour, breakage or increased percentage of rejects. They have seen it revealed in the unrest that the nervous woman may create among her fellow-employees. She may cause more headaches to management than do roadblocks in technological problems.

In fairness, however, it must be said that the occasional nervous perfectionist may be driven to performance that far surpasses the average.

In the Home

In the home, away from the business and professional world, the nervous woman may not be so easily nor so frequently detected. In industry, the visits to the first aid room may be practically unlimited, while in private practice visits are limited by cost, by time and trouble making and meeting appointments, and the time and willingness of the doctor to devote himself to her problems.

Then too, while the fears, tensions and anxieties are the same in manifestations of instability, there are differences in behaviour patterns and nature of complaints. There may be neglect of the home, or perfectionism in its visible care. Children may be ignored, tolerated or smothered with an over-indulgence that bodes ill for their future. Escape may show itself in intense involvement in social competition, or in community service above and beyond individual capacity. Fatigue from emotional conflict, or boredom that results from inadequate resourcefulness, either or both, may contribute to the nervousness of the individual.

Contrast of Nervous Men with Women

Far be it from me to give to you, or to leave you with the impression that there are no nervous men. But by number they are far fewer than the number of nervous women who come to us for care. This disparity is more apparent than real, and a few brief reminders may account for this.

Women seem to come earlier for help than do men. This would appear true because men are less inclined to reveal their weaknesses by complaint, considering it unmanly. This is as true of organic disease as it is of nervous disorders. Man resorts more to rationalization, while woman looks for help. Man has too long held the traditional role of dominance and independence of action, while woman is more newly arrived at the degree of emancipation she may enjoy today, and has less inhibitions about making complaint, especially to a man physician. A man may unload his troubles on his neighbor, his barber or the service station attendant, knowing he does not need to accept their advice. But if he seeks his doctor, he feels ahead of time he is likely to have restriction of freedom, or at least an uncomfortable load of change or moderation suggested. The woman, on the other hand, seeks help from doctor, or minister, or lawyer, feeling in these professions the cloak of authority, and the need for dependency upon advice.

One last thought in this vein. Since men come at a much later period in their endurance of some nervous disorder, we may find their original emotional maladjustment and instability given the more acceptable and concrete designation of somatic disease such as peptic ulcer, colitis, asthma, coronary disease, and the like. Women, by contrast, hear more often the words, "Examination and tests show no evidence of disease or change." "I find that nothing is wrong, and you have no need to worry."

Women have the duty and responsibility of pregnancy and child-bearing, imposed upon them by biologic necessity. Most women accept this role gratefully and derive happiness from it. There are those, however, that resent this and spend their reproductive years consciously or subconsciously in fear of the phenomena of this biologic capacity. Menstruation intensifies anxiety, pregnancy is avoided if possible, or endured with concealed or manifest dread, and menopause causes myriads of ills known best to the gynecologist and to God. But the brunt is borne by the husband and the family doctor.

The Physician's Share in the Problem

Since the bulk of our women patients manifest nervousness in some form or degree, ours is the responsibility to assume a goodly part of their care and guidance. This we may do in several ways, or by a judicious mixture of all resources avail-

able to us, and within the capacity of the patient to explore and to share.

We can minimize or deny outright the reality and validity of their complaints. This course may help some; more often it hurts.

Tranquilizers and other alternative medication may be used, with no further effort at realistic evaluation of the problems involved, or we may attempt reassurance which we ourselves do not feel, thus transfer poorly.

Many of us listen with ears alone, but not with attitude, and advise or prescribe accordingly. This seldom helps much, for the nervous woman is keenly sensitive to the degree of honesty of our interest and concern. When our heart is not in the interview, neither is hers in the therapy.

The over-hearty dismissal of the reality and significance of her distress by the promise she will be all right, also misses the mark, and reveals the insincerity that failed to give the proper consideration that she feels is due her complaints.

We can, however, be honest with ourselves and her by use of several acceptable means of approach and therapy. This involves a genuine interest in her problems, and the acceptance of the reality of her symptoms as we accept her as a valid patient, worthy of our time and effort. A complete examination, carefully made, is as important as attention to her history. Direct or indirect questions for clarification or explanation prove our attention as her account unfolds. These basic good manners mark good doctor-patient relationships, and make for empathy. Just so, brusqueness, impatience or indifference on the part of the doctor surely dampen the revelation of significant facts.

If we fail to grasp the significance of some detail, it is well to admit it, and request retelling on her part, for this admission may encourage reappraisal on her part, and thus she may gain insight.

Simple instructions in the mechanism of functional disorder and the telling of similar experiences of others, may effect real reassurance and understanding.

Suggestions are always in order for simple guidance in the fundamentals of balanced living. Basically, these include *adequate rest,* for fatigue is a mortal enemy of woman; *daily outdoor exercise,* for both man and woman physically are animals, and activity is tonic; *balanced diet,* adequate for her specific needs, is so important. She may need help to see that psychic hunger relates often to quality and quantity of intake of food, or that anorexia may mean disinterest in life or usefulness as a weapon to exact interest and concern of others; *good elimination,* with stress on regularity, and its importance in maintenance of good health; and finally, *peace of mind;* with all the implications this suggestion carries.

Here is the ground-work prepared for future visits that you suggest and expect. Here is concrete promise of help, given with confidence and accepted to the same degree in which it is given.

These future visits will explore basic needs of the patient as a woman, and the basic demands her culture and her sex require of her. Real effort is to be made to relate her nervousness to her failure to satisfy those basic needs, as well as her responsibility to meet the demands made of her. The reality of her uniqueness in the world is brought to mind, and the satisfactions that may be derived from her role in the home or in the factory may be discussed. Appeal to her tolerance of the inadequacies of others is often necessary, and assurance that she can rise above the tyranny of trifles naturally follows. Candid and confident suggestion that her distresses will diminish helps raise in her a conviction that they will.

Brief positive interest in value of work, proper perspectives in sex life, the value of sublimination and diversion, will all conspire to restore some degree of self-confidence and self-respect.

These are some of the ingredients utilized to re-create *peace of mind.* Out of such discussions with the patient, adapting interpretation of her potential and evaluation of her importance as an individual to the specific needs of her emo-

tional life can do much towards her acceptance of herself, realization of her potential, and diminution of her tensions as their harrassing forces are directed into creative, outgoing channels.

The Positive Prescription

I would end this essay with a word about the power of the positive prescription (to borrow for a moment from Dr. Peale). Often our direction reads, "Take q.4.h. for nervousness"; when this suggestion might help, "Take q.4.h. for relaxation". "One as needed for pain", might offer: "One as needed for relief". Other samples in the same vein might be, "One teaspoonful before meals for spasm", change to: "One teaspoonful before meals to prevent spasm"; "One at mealtime for indigestion", change to: "One at mealtime to improve digestion". Thus, emphasis is placed on the situation we would achieve, rather than on the distress from which relief is sought.

The disarming effectiveness of suggestion is well known, and the power of confident persuasion towards better health, self-confidence in known abilities, acceptance of one's role in our society, faith in one's self and in the spiritual values as we interpret them can go far in bringing happiness to the individual, the better to endure stresses, and to get the best out of life.

Ninth Annual Meeting of the American Public Health Assn.

* * * Physicians remember infants of exceeding feebleness or suffering from long and wasting sickness, retaining life, even contrary to all expectation, yet now developed into robust young men, or healthy, strong and comely women.

It is impossible to believe that one-half the human race is born non-viable. If it were true, most appropriately this multitude of slain innocents might join in the tombstone soliloquy of the infant in the London cemetery, dead at one day old, "If so soon I am done for, I wonder what I was begun for."

New Orleans M. & S. J. 10:649 (March) 1882.

Severe Allergic Reaction After Ingestion Of Acetylsalicylic Acid Compounds

• The authors report a case of anaphylactic shock in an apparently nonatopic individual.

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ALLERGIC reactions in atopic individuals after ingestion of compounds containing acetylsalicylic acid have been substantiated on numerous occasions. The incidence among such patients has been reported to range from 0.2 per cent to 10 per cent [1] and the severity of the reactions at times is well known. Several deaths from hypersensitivity to aspirin have been noted in the past.[2, 3] The most frequent reactions according to Matthews et al.[4] include the following:

1. Asthma
2. Urticaria
3. Angioneurotic edema
4. Other skin eruptions
5. Rhinitis
6. Gastrointestinal disturbances
7. Purpura.

In addition, several reports of cardiac abnormalities have appeared in the literature.[5]

It is the purpose of this paper to report a case of anaphylactic shock in an apparently non-atopic individual after ingestion of Bufferin® (acetylsalicylic acid 5 grains, aluminum glycinate, and magnesium carbonate) and Alka-Selzer® dissolved in water (sodium acetyl salicylate, calcium sodium phosphate, sodium bicarbonate, and sodium citrate).

Case Report

The patient, E. P., was a 15-year-old married white female who stated that she awoke on the morning of August 17, 1960, and noted a mild frontal headache.

About an hour later, one Bufferin tablet was taken. After obtaining no relief in twenty minutes, an Alka-Selzer tablet dissolved in water followed by a second Bufferin tablet in fifteen minutes were taken.

Approximately ten minutes later, she suddenly became very weak and dizzy. This was followed by syncope for an unknown length of time. Upon regaining consciousness, the patient noted generalized giant urticaria and intense pruritis. She also vomited once. Nothing had been taken orally except the tablets.

There was no past or family history of allergic disease and both compounds had been ingested by the patient on a few occasions in the past with no untoward effects.

Eighteen days prior to this episode she had delivered a normal male child and was placed on oral iron therapy probably on an empirical basis as the hematocrit after delivery was recorded at 40 per cent.

This substance had been taken until three days prior to the ingestion of the acetylsalicylic acid compounds. No other medications had been taken.

When seen in the Charity Hospital Admit Room the patient was in shock with a blood pressure of zero, pulse of 120 per minute, temperature of 100°F. and respiration of 22 per minute. Giant urticaria was noted over the entire body. Lesions were more prominent on the trunk. The remainder of the examination was nonrevealing.

After receiving 100 mgm. of hydrocortisone, 50 mgm. of diphenydramine hydrochloride and 30 mgm. mephentermine sulfate the blood pressure rose promptly to 120/80 and pulse slowed to 90 per minute. During the ensuing six hours the patient had three episodes manifest by slow development of urticaria over trunk and extremities progressing into giant urticarial lesions within fifteen to twenty minutes and controlled each time by subcutaneous epinephrine. During each episode her vital signs remained stable. By the following morning all urticaria had subsided

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and the patient was afebrile, only a fine reticular erythema of the skin remaining.

Laboratory data revealed an initial white blood cell count of 21,800 with 73 per cent polymorphonucleated neutrophils, 8 per cent eosinophils and 19 per cent lymphocytes. These values dropped to within normal limits in six days at which time the white cell count was 8,200 with 60 per cent polymorphonucleated neutrophils, 38 per cent lymphocytes and 2 per cent eosinophils. The hematocrit remained stable at 40 per cent. One plus albuminuria was noted on admission by the sulfosalicylic acid test, but this returned to normal one day later.

Values for fasting blood sugar, blood urea nitrogen, chlorides, carbon dioxide combining power and creatinine were normal. Electrocardiogram and chest film were also normal and one lupus erythematosus test was negative. Both passive transfer and reverse passive transfer test were done on the back of a nonallergic individual using 1:100 dilutions of the Bufferin, Alka-Selzer, plain aspirin and the oral iron preparation which the patient had taken, plus a saline control.

Reactions were observed at twenty minutes and twenty-four hours. After forty-eight hours, the sites were challenged with the respective drug, or patient's serum. The results noted 20 minutes later are illustrated in Charts 1 and 2.

An attempt was also made to demonstrate precipitins using the same four antigens and utilizing the agar diffusion technique. Dilutions of antigen up to 1:10,000 were employed along with a standard amount of the patient's serum. The tubes were observed daily for one month. No rings of precipitate occurred in any tubes or in the control tubes.

Discussion

It is of significance that this patient gave a negative past history and family history for allergic disease because reactions of this nature are very rare in nonatopic individuals.[4]

Symptoms in various forms of acetylsalicylic acid hypersensitivity usually appear within ten minutes to two hours. In our case the onset was fifteen minutes after ingesting a second Bufferin tablet, which conforms with the above. Although scratch and intradermal tests have been reported as positive in some instances of aspirin allergy,[6] it is generally known that they are of little significance in the diagnosis of drug allergy in general, are usually always negative in aspirin allergy and indeed may be dangerous.[7]

Precipitin tests using simple chemicals have also been unrewarding in the past [8, 9] as was our experience in this case. Because of negative results upon attempt to demonstrate reagin in drug allergy by others, we elected to perform the reverse passive transfer test as well as the standard Prausnitz-Küstner test, hoping that with the former method the drug would combine with tissue protein and produce a true antigen which would give a positive reaction upon retesting with the patient's serum.

The results which showed a +++ reaction in twenty minutes using both methods for the Bufferin compound and a + reaction to plain aspirin and Alka-Selzer with negative control were surprising. Possibly the strong reaction was due in some way to the specific presence of the aluminum glycinate and magnesium carbonate in the Bufferin compound, but this remains a matter of speculation. Thus, from the available data it cannot be said with certainty what the exact cause of the severe reaction was in this patient.

Summary

A case of anaphylactic shock following ingestion of Bufferin® and Alka-Selzer® compounds is reported. Both Prausnitz-Küstner and reverse passive transfer studies demonstrated a +++ reaction for Bufferin® and + reaction for Alka-Selzer® and plain aspirin with negative controls.

CHART 1
PASSIVE TRANSFER*

Bufferin	+++
Aspirin	+
Alka-Selzer	+
Iron preparation	—
Saline control	—

* Skin sensitized with .1 cc. of patient's serum and retested in 48 hours with 1:100 dilutions of antigen.

CHART 2
REVERSE PASSIVE TRANSFER*

Bufferin	+++
Aspirin	+
Alka-Selzer	+
Iron preparation	—
Saline control	—

* 1:100 dilutions of antigen injected initially and sites retested in 48 hours with patient's serum.

Precipitin tests using the agar diffusion technique were negative.

Although very rare, the severity of such reactions after ingestion of these compounds is emphasized. The incidence and most frequent types of reactions are listed.

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Louisiana State Medical Society

Owing to the ubiquitous floods which have caused such desolation in the most important territory of the State; the officers of the Louisiana State Medical Society have deemed it proper to defer indefinitely the meeting which was to have been held on the 29th of March. * * * We trust that the time of the meeting has only been delayed for a short period, and that in the near future a meeting will be called which will be represented by every parish, and that its power as a State organization will be made known by the combined influence of the medical men throughout Louisiana.

New Orleans M. & S. J. 10:794 (April) 1882

Trichinosis in a Central Louisiana Community

• Report of an investigation on a recent outbreak in Louisiana.

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IN Louisiana reports of trichinosis in man have been rare. For the ten year period, 1951 through 1960, only 13 cases were reported to the Louisiana State Board of Health; however, an outbreak of 11 cases occurred in a Central Louisiana farming community in January, 1961.

In rural areas it is customary for many farmers to raise hogs for home slaughter. Some of the meat is often used in the preparation of smoked sausage, a process which is usually insufficiently controlled as to time and temperature, when done at home, to kill the trichina. Unfortunately, some people are unaware of the danger of eating these raw or insufficiently cooked products. Such was the case in the present outbreak.

On approximately January 1, 1961, a farmer near Alexandria, Louisiana slaughtered a 4 to 5 year old sow that had "lost all of its teeth and had been stiff gaited and sluggish" during the past year. Sausage made from the meat was smoked with green hickory wood a few days later. Between January 7 and 12, the farmer's 6 sons, 3 daughters, a daughter-in-law, and a neighbor ate a portion of the raw smoked sausage. One son became ill on January 10, and by January 27, all 11 of those who had eaten the raw sausage had become ill.

Case Reports

On February 2, two of the cases (E.R. and L.R.) were taken to see a family physician. The symptoms in these 2 patients and in 2 additional cases at home were described. They all gave history of ingestion of raw smoked sausage. Trichinosis was suspected and an intradermal test with trichinella antigen was applied to each of the two patients. Both were positive. Blood cell counts showed a 51 per cent eosinophilia in one and 48 per cent in the other. On the following day the 2 additional patients (S.R. and H.R.) were seen by the same physician. Trichinella skin tests were negative on these two; however, a portion of muscle biopsied from the gastrocnemius muscle of one (S.R.), on microscopic examination, showed the presence of living *Trichinella spiralis* larvae.

Meanwhile, 4 hospitalized cases were being studied by other physicians. Summaries of pertinent findings were abstracted from hospital records on these cases:

C. R., a 23 year old male, was admitted to the hospital on January 11. He had onset the previous day with marked nausea, vomiting and diarrhea. Four years ago he had a transection of the spinal cord at D-7. On April 14, 1960, a uretero-ileostomy was done, resulting in recurrent urinary infections. His temperature on admission was 102°F. and he was having chills. He had 6,900 leukocytes with 4 per cent eosinophiles, 3 per cent stab forms, 83 per cent segmented neutrophiles, and 10 per cent lymphocytes. He was treated with chloramphenicol, 1 gram every eight hours, and was discharged four days later.

On January 22, the patient returned to the hospital and stated that he had been well until the day before, when he developed a severe headache and felt as though he had fever. Periorbital edema and conjunctivitis were noted. He complained of dyspnea and nausea but no vomiting or diarrhea. His blood count showed 10,400 leukocytes per cubic millimeter with 19 per cent eosinophiles, 3 per cent stab forms, 66 per cent

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segmented neutrophiles, and 12 per cent lymphocytes. A specimen of feces was examined and was found positive for *Endomoeba histolytica* cyst. The patient was given treatment for amebiasis and discharged on January 24.

The patient returned two days later with fever, diarrhea, and weakness. He had an eosinophile count of 22 per cent. On February 1, a trichinella skin test was negative. His blood count, on February 2, showed 37 per cent eosinophiles. Section of gastrocnemius muscle biopsied, on February 3, showed encysted forms of *T. spiralis* larvae and a marked inflammatory reaction which included many eosinophiles. The bentonite flocculation test [1] for trichinosis was applied to serum specimens collected on February 1 and 5, and both were positive in titers of 1:10.

E.B., a 35 year old female, gave birth to a 9 pound baby boy at home on January 21, 1961, and later the same day went to the hospital. The following day she had a moderate diarrhea which subsided after treatment; however, she continued to have a low grade fever. Since there was no great discomfort or further signs of enteritis she was allowed to go home on January 25. After returning home, malaise continued and she had recurrent fever, particularly in the evenings.

On January 28, she went back to the hospital due to an increase in fever, swelling of her eye lids, pains in her arms and legs and general malaise. She appeared acutely ill and her temperature was recorded at 104.2°F. She had 6,800 leukocytes per cubic millimeter with 8 per cent eosinophiles, 76 per cent segmented neutrophiles, and 16 per cent lymphocytes. On February 2, her eosinophile count was 27 per cent. A trichinella skin test, February 4, was negative. The bentonite flocculation test for trichinosis on serum collected on February 1 was also negative.

C.L., a 23 year old male, was admitted to the hospital on January 25. He had onset of symptoms approximately one week prior to admission. The symptoms consisted of burning in the epigastrium, abdominal cramps, nausea with occasional vomiting, fever, chills, and generalized aching. At first he thought he had influenza and took medication at home. His symptoms subsided for two days; however, upon returning to work all of the symptoms returned.

At the time of admission he appeared acutely ill, weak and febrile. His temperature was 103.6°F. Periorbital edema and small petechial hemorrhages of the conjunctiva were noted. There was a slight injection of the nasopharynx. Bronchial breath sounds were moderately increased and there were a few scattered crepitant rales, particularly at both lung bases, posteriorly. The abdomen was slightly tender in the epigastric region.

His leukocyte count on admission was 9,700 per cubic millimeter with 3 per cent eosinophiles, 2 per cent stab forms, 70 per cent segmented neutrophiles, and 25 per cent lymphocytes. On February 2, his eosinophilia had increased to 56 per cent. On February 1, a trichinella skin test was negative. The bentonite flocculation test for trichinosis on serum collected on February 1 was positive in a titer of 1:20.

V.H., a 25 year old female, was admitted to the hospital on January 27, 1961. Her illness began four to five days prior to admission with abdominal cramps, diarrhea, fever and chills. She noticed swelling around her eyes and hands one day before admission. On the day of admission she had increased periorbital edema to the point that her eyes were almost closed. She had edema of the arms, hands, knees and legs. There was a slight conjunctival hemorrhage in the right eye. Her temperature was 104°F. Her abdomen was tender throughout and the bowel sounds were highly active.

On January 27, her leukocyte count showed 11,400 cells per cubic millimeter with 5 per cent eosinophiles, 7 per cent stab forms, 68 per cent segmented neutrophiles, and 10 per cent lymphocytes. On February 2, she had an eosinophilia of 54 per cent. A trichinella skin test performed on February 2, was negative. The bentonite flocculation test for trichinosis, applied to serum collected on February 6, was positive in a titer of 1:10.

Each of the 11 patients was interviewed by the investigators on February 8 and 9, 1961. Information was solicited on dates of ingestion of the infected sausage and dates of onset of symptoms, and a previously prepared check list of symptoms was completed. Table 1 represents a tabulation of the symptoms and incubation periods of each patient.

Only 2 patients (M.R.J. and H.R.) failed to report symptoms referable to the gastrointestinal tract. The other outstanding complaints were fever, weakness, headache, muscle pains, and periorbital, facial and dependent edema. The characteristic nature and severity of the symptoms in 9 of the 11 patients indicate a large dose of the infective organisms. Nine of the patients ingested some of the raw sausage only on one occasion, and some of the most severely affected individuals only tasted the sausage to check the seasoning. One of the two exceptions (C.R.) consumed a portion of the sausage while at home be-

TABLE 1
SYMPTOMS AND INCUBATION PERIODS

Symptoms	C.L.	V.H.	C.R.	I.R.	E.V.B.	S.R.	E.R.	L.R.	M.R.J.	H.R.	E.B.	Per Cent
Nausea	+	+	+		+			+			+	54.5
Vomiting	+	+	+		+							36.4
Abdominal Cramps	+	+	+	+	+	+	+	+			+	81.8
Diarrhea		+	+		+		+	+			+	54.5
Chills	+	+	+	+	+	+	+	+		+		81.8
Weakness	+	+	+	+	+	+	+	+		+	+	90.9
Headache	+	+	+	+	+	+	+	+	+		+	90.9
Anorexia		+	+	+		+	+				+	54.5
Chest Pain	+	+	+			+	+	+			+	63.6
Cough				+	+					+		27.3
Myalgia	+	+	+	+	+	+	+	+	+		+	90.9
Sore Throat		+			+	+	+		+		+	54.5
Pain on Mastication			+	+		+	+				+	45.5
Dyspnea			+	+							+	27.3
Periorbital Edema	+	+	+	+	+	+	+	+	+	+	+	100.0
Facial Edema	+	+	+	+	+	+	+	+			+	81.8
Dependent Edema	+	+	+	+	+	+	+				+	72.7
Conjunctivitis	+	+	+	+	+	+	+				+	72.7
Photophobia			+	+		+	+				+	45.5
Pain on Eye Movement	+		+		+		+	+		+	+	63.6
Rash and/or Pruritis	+	+	+		+	+	+	+			+	72.7
Stiff Neck	+	+	+		+	+	+				+	63.6
Fever*	103.6	105	104	+	104	104	103.5	104	103	104	104.2	100.0
Incubation Period in Days	14	14	3	16	10	16	1	4	3	19	12	

* Maximum temperature recorded.

tween each of his 3 hospital admissions. This probably accounts for the recurrent gastrointestinal symptoms recorded on his hospital record.

The incubation periods ranged from one to nineteen days; however, the investigators are not convinced that all of the patients accurately remembered dates of ingestion of the sausage and the dates of onset of symptoms. A possible explanation for the short incubation periods of one day and three days in 2 of the cases (C.R. and E.R.) is the consumption by these patients, on January 5, of a portion of roasted pork meat from the same animal which was used in the preparation of the sausage. The mother of these 2 boys stated that the meat was not "well done around the bones" and that the two boys "chewed on the bones" on the night of January 5. Their incubation periods were calculated from the date of ingestion of the raw sausage one and three days later.

The most outstanding laboratory finding other than the identification of *T. spiralis* in the biopsied muscle tissues was a hypereosinophilia ranging from 27 to 56 per cent in 6 of the patients. (Blood counts were not done on the remaining 5 patients.) In 2 patients only differential counts were done and, of the remaining 4 on which total W.B.C. counts were made, only 2 (U.H. and C.R.) had a leukocytosis which exceeded 10,000 cells.

Trichinella skin tests were positive in only 2 of 8 patients tested. All of these tests were applied between the twenty-third and twenty-fifth day following ingestion of the infected sausage. The bentonite flocculation tests were positive in 3 out of 4 patients whose serum was tested. The sera were collected at approximately the same time that the skin tests were done (3-4 weeks after ingestion of the sausage).

A sample of the suspected sausage was obtained for laboratory examination. A small portion was squeezed between 2 glass slides and microscopic examination revealed the presence of the living *T. spiralis* larvae. Also, a portion was fixed in 10 per cent formalin, blocked in paraf-

fin, cut and stained with hemotoxylin and eosin and the encysted larvae were demonstrated.

All of the sausage meat came from one hog. This animal, with several others, had free range in the community. Their feed consisted primarily of acorns and raw garbage, supplemented at times with grain. It was reported that a neighbor bought swine at a public livestock auction and that some of them died from unknown causes. It was suspected that some of the dead animals were eaten by the hog which was used for the sausage meat. Rats had been prevalent but due to recent poisoning the number had been markedly reduced. Either the dead hogs or the garbage, or both, appeared to be the source of the *T. spiralis* infection in the slaughtered animal.

Discussion

Trichinosis became a reportable disease in Louisiana in 1943 and from this date through 1960 only 42 cases have been recorded. The greatest number of cases reported in one year during this period was 12 in 1946, and these were distributed among 10 different parishes. The highest number of cases traced to a single source during the same period was 4 in 1954.

Although the disease did not become reportable until 1943, the State Board of Health, in 1903, investigated an outbreak of trichinosis in Richland Parish affecting 18 persons with 4 deaths.[2] All of those affected had eaten smoked sausage made from the flesh of one hog. *T. spiralis* was identified in a sample of the sausage.

Hinman [3] in 1936, and Sawitz [4] in 1937, studied the incidence of trichinosis among bodies autopsied in New Orleans, Louisiana. The former found *T. spiralis* present in 7 (3.5 per cent) of 200 cases studied by the muscle digestion method and the latter 10 (5.0 per cent) of 200 cases utilizing both the digestion and pressed muscle methods of examination. This is considerably lower than the average of approximately 15 per cent found by investigators at various other localities in the United States.

Although trichinosis is not a reportable disease in many states, approximately 300 cases are reported annually to the United States Public Health Service. In all probability, a large number of cases are undiagnosed due to trichinosis having the clinical earmarks of many other diseases. The onset and progress of the disease is most likely to be atypical in mild cases.

Laboratory procedures useful in diagnosing trichinosis commonly fail to afford positive findings until rather late in the course of the disease. An eosinophilia, present at some time during the course in about 90 per cent of cases, appears about seven days after infection. This may be the first diagnostic clue. Intradermal tests with trichinella antigen usually become positive between the second and third week of infection. In the present outbreak 2 different commercially prepared antigens were used, 4 patients being tested with each. One product yielded the 2 positive reactions. It was reported that the other product was old and may possibly have lost its antigenicity, accounting for the negative results.

Various serologic tests, including the precipitin, flocculation, complement fixation, and more recently the latex-agglutination [5] test, have proven valuable in the diagnosis of trichinosis; however, these tests may not yield positive findings until the third or fourth week of infection. Muscle biopsy usually is not helpful until about the third week. A positive biopsy definitely establishes the diagnosis; however, a negative finding does not exclude trichinosis.

Summary

1. An investigation of 11 cases of trichinosis in a rural Louisiana Community is presented.

2. All of the patients had eaten raw smoked pork sausage made from the meat of a home slaughtered hog which had fed on raw garbage and dead hogs owned by a neighbor. A sample of the sausage contained the *T. spiralis* larvae.

3. The outstanding symptoms were

nausea, vomiting, abdominal cramps, diarrhea, fever, periorbital edema, muscular pain and weakness.

4. Blood cell counts done on 7 patients showed a marked eosinophilia. Muscle tissue biopsied from 2 patients contained the *T. spiralis* larvae. The results of trichinella skin tests and the bentonite flocculation tests are stated.

References

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3. Hinman, E. H.: Trichinosis in Louisiana, New Orleans M. & S. Jour., 88:445, 1936.

4. Sawitz, W.: Are Post-Mortem Statistics on Trichinosis Valid for the Living Population?, Am. J. Pub. Health, 27:1023, 1937.

5. Innella, B. A. and Redner, Wallace J.: Latex-Agglutination Serologic Test for Trichinosis, J.A.M.A., 171:885, 1959.

Training School of Nurses

So the school for training nurses is likely to go on and accomplish a good work, in spite of obstacles thrown in its way. A noble spirited citizen of the most noble of cities has made a generous donation in aid of the enterprise. While the money bestowed is an opportune and materially important assistance, the fact that the attention of the beneficent and humanitarian people, situate as remote from New Orleans as Boston, is awakened to a knowledge and sympathy with our efforts here should greatly encourage us and be accepted as a token of future success.

New Orleans M. & S. J. 10:959 (June) 1882.

Trichinosis–A Scientific Homespun Diagnosis

• Report of a Case Diagnosed by Patient.

ALBERT L. CULPEPPER, M. D.
Alexandria

ON the morning of February 2, 1961, I arrived a little late at my office to find a tall, gaunt old gentleman pacing the floor impatiently. He was from Effie, La. He wanted the doctor who had saved the life of his good neighbor. His two boys in the next room were sick "real sick, with fever and chills, loose bowels, and hurting all over". I quickly stated that we were having quite an epidemic of intestinal infections now and that a few days would probably see them improved. He replied that this was different, "lots different, and if someone would just listen" he thought he knew the answer. His two boys here and two more at home had been sick two or three weeks and—

"While lying up in bed studying his lessons, Shelton, he's in High School and Shelton is right bright, you know, he was studying Bology"—

"What?" I asked.

"Bology", impatiently, "and he says 'Pa, here it is right here what we have. If you eat the raw meat of a sick hog with the ring tail screw worms, they go from your belly to your lungs, then in your blood to your muscles and you get chills, fever, headaches, diarrhea, pains in your chest and back and especially in the legs—that's what we have.' Now what do you think, Doctor?"

"Well", I replied, "I think three things: first, that you and Shelton are stem-winders; second, that you should receive gold medals; and third, that you should give the annual oration at the Founder's Day Banquet."

"Yeh?", he said.

"Yeh." I said.

Fortunately, we had some fresh Trichinella antigen.[1] Skin tests gave immediate positive reactions. Blood smears revealed 50-55 per cent eosinophilia.

Choosing the sickest of the four boys, Shelton age 17, we biopsied the external group of the right gastrocnemius. On excising the fascia, the muscle fairly popped through. Ample sections were removed. Our technician [2] insisted on pressing some fresh muscle between slides for immediate microscopic study. She found the tissue alive with the larvae coiling and uncoiling. We were considerably excited over this and immediately took the slides and remaining tissue to the pathologist.[3]

We feel that Mr. R. and son, Shelton, made the correct diagnosis, and our alert technician confirmed it.

We immediately placed the boys on the proper treatment. All are now up and about, at work and at school, except Ezra who, being of a true scientific temperament and a little hard to convince, yes—ate some more raw sausage and is back in bed.

---

[1] Courtesy of Eli Lilly and Co., Indianapolis, Indiana.

[2] Mrs. Temple Voltz.

[3] Dr. Edward C. Uhrich, Pathologist and Director of the Laboratory, Baptist Hospital, Alexandria, La.

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Editorial

Community Health Services Directed By Non-Medical Agencies

Those who are in a position to observe, and whose habit is to reflect, can see the results of a continuous interplay of forces between the efforts of protective, conservative, organized medicine, on the one hand, and aggressive and infiltrative socialism, on the other. The trend which this uneasy contest has taken is well displayed in two articles by Dr. Ben Freedman.[1, 2]

The theses presented in these two papers are comprehensive, well supported, and carry a conviction that particularly in Louisiana, but also, throughout the nation as a whole, organized medicine is in great need of improving its tactics, if it is to maintain the rights, the privileges, and benefits of private practice.

In substance, these articles show that about the turn of the century the interests of the private practitioner, or family physician in this country, were more or less parallel to those of the public health departments, and that in the first half of the century additional forces came into play. One was the great increase in medical knowledge. The other was the conviction of organized medicine that State programs, such as were administered in various countries of the world, were not in the best interests of the public or good practice. The influence of organized medicine was then directed in such a manner as to restrict expansion of State Departments of Health.

Consequent upon this, Community Health programs, in the broad sense, began to be born. They took the form of voluntary health agencies, programs in various departments of government not connected with the boards of health, in areas where the supervision was not medical. In 1930, these changes were barely manifest. Thirty years later, a startling increase in agencies, programs, and enterprises had taken place. The actual operation of these had been splintered into all

phases of government and community life. Except in those operated by the Board of Health, the directing forces were not physicians. The upsurge in these programs took place in many instances without the support, and possibly in opposition to the influence and efforts of organized medicine. This carried with it a relative inhibition of the activities in the field of public health as directed in the health department.

The idea presented in the papers is that the great increase in number of governmental health programs was in response to an upsurge in community desire. The Journal, however, suggests a more cynical explanation. Those influences which took form in the first half of the current century in the promotion of socialism spread their doctrine by advancing a paternalistic concept of social structure, and therefore, of government. Avid among these, acting, accepting and developing these ideas were the group that might be called the social service lobby. In its various manifestation, it is responsible for far reaching changes in the average citizen's concept of his relation to society and the state. In the period of individualism, the citizen's thought was what could he do to support the state. In the new era of paternalism, the thought authoritatively presented is what can the state do to support the citizen?

In such a line of thought, each state agency in contact with its appropriate segment of the public embarks on a plan of added services delivered in a manner satisfactory to itself, and each bureaucrat is under the continual temptation of whether to build a larger or smaller empire.

As Louisiana is the most socialistic state in the Union, it would be expected that this process would have reached a considerable extent of expression here. During the year 1930, before the great expansion began, the State Board of Health had responsibilities in thirty-three health program categories. About ten other State agencies, including various special boards or commissions operated ten services of various types in six health program categories. In 1940, there had been considerable increase. In 1950, the State Board of Health had responsibilities in forty-eight health program categories, while thirty-four other state agencies, including special boards or commissions, operated well over one hundred services of various types in thirty-seven program categories. In such an expansion there was fragmentation of the type, character, and direction of the service and in most instances it was non-medically directed, although physicians may have been employed to do the bidding of their lay employers.

In the process, the State Board of Health, originally organized as a state agency to deal with community health matters, is rapidly losing its intended function, while other state agencies are taking on responsibilities in areas in which they were not intended to function, and for which they are not organized or competent to act.

Government medicine such as this tends to promote confusion, duplication, added expense, and inefficiency. It is advocated by Dr. Freedman that organized medicine take an aggressive attitude and physicians become pioneers in the studying, proposing, planning, and participating in the administration and operation of health programs needed by the community. The State Society should have a permanent committee charged with this responsibility and the medical profession should be represented in government to protect the interests of the community, while at the same time guiding the development and administration of community health programs in a direction satisfactory to the progressive evolution of the profession itself.

In furtherance of these ideas the House of Delegates in the meeting in May 1961, passed a resolution, the effect of which will be to establish a committee to study the problems of organization, administration, and all the other aspects of State government health services for the purpose of keeping the medical profession informed concerning these matters and for supplying pertinent and accurate data for

guiding the action of the Society.

The implication here for organized medicine is as it has been found in so many areas where the practice of medicine touches government. To maintain ourselves and to be allowed to retain the privilege to do private medicine, which is the only type of good medicine, the physician has to become a politician. He does not have to run for office, but he has to secure for himself, as an individual and for the Society as a whole, a firm place in all that pertains to political influence. The physician is not the only one who has to maintain himself in his chosen field of activity and also in the seats of political power.

1. Freedman, Ben: Organized Medicine and the Crisis in Community Health Programs, J. Louisiana State M. Soc. 112:231 (June) 1960.

2. Freedman, Ben: The Fragmentation of Community Health Services in Louisiana: The Responsibility of Organized Medicine, J. Louisiana State M. Soc. 113:264, (July) 1961.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

INTRODUCTION OF RESOLUTION, HOUSE AND HOUSE CONCURRENT

The following named members introduced the following entitled Resolution, House and House Concurrent:

House Resolution No. 9—

By Messrs. Jewell and Lewis:

A RESOLUTION

To express the appreciation of the House of Representatives of the Legislature of the State of Louisiana to the Louisiana State Medical Society, to the East Baton Rouge Parish Medical Society and to the members thereof for their furnishing and maintaining a first aid station in the State Capitol Building and for their staffing the first aid station during all meetings of either house of the Legislature of Louisiana.

WHEREAS, life and health are two of the greatest gifts which the Almighty has bestowed upon men, and

WHEREAS, the Medical Profession is one segment of our society into whose hands the preservation of these gifts has been placed as a sacred trust, and

WHEREAS, the demands of legislative sessions and the excessive fatigue and tensions created by them frequently have brought about sudden illness among the members, and

WHEREAS, following repeated occurrences in which members of this House and of the Legislature or others present in the legislative halls have required immediate medical attention, the Louisiana State Medical Society and the East Baton Rouge Parish Medical Society in 1959 unselfishly took upon themselves a project under which a First Aid Station was established and since has been maintained on the first floor of the State Capitol for the benefit of members of the Legislature and others who may find themselves in need of emergency medical assistance, and

WHEREAS, without charge to the members of this Honorable Body said First Aid Station was established and equipped with furniture, equipment and supplies initially loaned by various medical suppliers but purchased for the Station by the Louisiana State Medical Society, and

WHEREAS, said Louisiana State Medical Society has further evidenced its concern for the members of the Legislature and has given generous attention to their needs during busy times when they are away from their homes by furnishing without charge oxygen and other medical supplies and by engaging and paying for the services of a registered nurse who is kept in said Station at all times when the Legislature is in session, and

WHEREAS, the East Baton Rouge Parish Medical Society since 1959, has supervised and operated said First Aid Station and every member of said Society has unselfishly and at personal sacrifice served as a member of a roster from which physicians have been selected to be present in the First Aid Station or to be immediately available for service whenever the Legislature is in session, and

WHEREAS, the Members of the House of Representatives are fully cognizant of the gen-

erosity and sacrifice involved in the furnishing of these medical services, all without charge to those who receive them and at personal cost and sacrifice to the members of the medical association who give of their time in making themselves available, and

WHEREAS, the members of the House are deeply grateful to the East Baton Rouge Parish Medical Society and all others involved in this great public service which for several years has served not only for the relief of minor ailments but which in fact has on several occasions been of critical importance when the lack of immediate medical aid might have resulted in serious consequences and perhaps even the loss of life, and

WHEREAS, it is entirely fitting that the House of Representatives pause in its deliberations to give due recognition of the services thus so unselfishly rendered over a period of years for the benefit of its members and to express to those Societies and agencies which have contributed to this valuable effort the commendation and keen appreciation of this Honorable Body,

THEREFORE, BE IT RESOLVED by the House of Representatives of the Legislature of the State of Louisiana that the members of the House of Representatives do hereby individually and collectively commend and pay tribute to the members of the Louisiana State Medical Society for the part it has played in furnishing registered nurses, and in furnishing and equipping the First Aid Station for the Legislature, and to the East Baton Rouge Parish Medical Society for spear-heading the project by which the First Aid Station was begun for the benefit of the Legislature and for its continuing service to the Legislature in supervising the operation and maintenance of said First Aid Station, for their benefit and making available at all times during sessions of the Legislature medical personnel either actually in attendance in the Capitol or immediately available to care for emergency needs of members.

Be It Further Resolved that the members of this House do hereby express their sincere appreciation for the many services thus rendered, and

Be It Further Resolved that duly certified copies of this Resolution shall be transmitted to the President of the Louisiana State Medical Society and to the President of the East Baton Rouge Parish Medical Society, with the request that these officials shall make known to all others who have assisted in this work the gratitude of the members of the House of Representatives therefor.

Read in full.

Lies over under the rules.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Jefferson	Third Thursday of every month	
Lafayette	Second Tuesday of every month	Lafayette
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY ELECTS NEW OFFICERS 1961-1962

The twenty-fifth annual meeting of The New Orleans Graduate Medical Assembly will be held March 12-15, 1962, headquarters at The Roosevelt Hotel.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Barrett Kennedy, President
Dr. Ralph M. Hartwell, President-elect
Dr. W. E. Kittredge, First Vice-President
Dr. John G. Menville, Second Vice-President
Dr. H. Reichard Kahle, Third Vice-President
Dr. Mannie D. Paine, Jr., Secretary

Dr. Samuel R. Staggers, Treasurer
Dr. Walter F. Becker, Director of Program
Dr. Gilbert C. Tomskey, Assistant Director of Program
Dr. William R. Arrowsmith, Assistant Director of Program

Members of the Executive Committee include Doctors Maurice E. St. Martin (retiring President), Richard L. Buck, Daniel C. Riordan, L. Sidney Charbonnet, Jr., and Jack E. Strange.

FORTHCOMING MEETINGS

The Council on Arteriosclerosis of the American Heart Association will hold its Annual Meeting on October 18-20 at the Hotel Balmoral, Bal Harbour, Miami Beach, Fla., immediately preceding the AHA's annual Scientific Sessions in the same city, October 20-22.

All interested physicians, whether or not they are members of the Council, are invited to attend the sessions. Further information on the Council meeting may be obtained from Dr. Jeremiah Stamler, Chicago Board of Health, 54 West Hubbard Street, Chicago 10, Ill., or from the American Heart Association, 44 East 23rd Street, New York 10, N. Y.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tennessee, September 25-26, 1961, Joseph W. Graves, M. D., 109 Medical Arts Building, Chattanooga, Tennessee, Chairman.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Applications for certification in the American Board of Obstetrics and Gynecology, new and reopened, Part I, and requests for re-examination in Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is August 1, 1961. No applications can be accepted after that date.

Candidates are requested to write to the office of the Secretary for a current Bulletin if they have not done so in order that they might be well informed as to the present requirements. Application fee ($35.00), photographs, and lists of hospital admissions must accompany all applications.

After July 1, 1962, this Board will require a minimum of three (3) years of approved progressive Residency Training to fulfill the requirements for admission to examination. After the above date, training by Preceptorship will no longer be acceptable.

Diplomates of this Board are urged to notify the office of the Secretary, 2105 Adelbert Road, Cleveland 6, Ohio, as soon as possible of changes in address.

HEREDITY REPORTED AS FACTOR IN SPINAL AILMENT

Heredity has been reported for the first time as a definite factor in a relatively common type of spinal deformity.

A defect of closure in the spinal column (spinal bifida occulta) was found in two sons and a daughter of parents who both had the same ailment. The cases are described in the April 8 Journal of the American Medical Association.

In the children the bone defect was associated with a disorder of the nervous system. Stretching and deformity of the spinal cord had occurred as a result of a shortening of the thread-like connection (filum terminale) which anchors the spinal cord to the base of the spine.

Said Drs. J. Grafton Love, David D. Daly, and Lloyd E. Harris of the Mayo Clinic, Rochester, Minn.:

"It is our opinion that the occurrence of tight filum terminale in all three siblings of this family clearly indicates a gene-determined etiology and that this is the first reported instance of the syndrome as a hereditary disorder."

However, they added that "the precise mode of genetic transmission of this disorder is not clear."

The spinal column defect usually is not associated with neurological disorders, they said. However, when it is, symptoms include disturbances in gait, weakness and atrophy of the legs and deformities of the feet.

The spinal cord defect was successfully corrected in the three children by surgical procedures.

BOOK REVIEWS

Orthopaedic Appliances Atlas—Volume 2—*Artificial Limbs.* J. W. Edwards, Ann Arbor, Michigan, 1960. $10.00 Size 8½x11. pp. XXI and 499.

Volume 2 of *Orthopaedic Appliances Atlas* on Artificial Limbs follows Volume I on Braces, Splints and Shoe Alterations after eight years during which the Committee on Prostheses and Braces of the American Academy of Orthopaedic Surgeons labored faithfully to bring together and present the "technical procedures, prescription techniques, and training methods which have been developed through many years of prosthetics research."

During and after World War II, the necessity for improving amputation technics, manufacture of artificial limbs, and proper training of amputees in use of prosthetic appliances was recognized. Much time, effort, and money have since been devoted to well-directed research to make better artificial limbs and improve the lot of the amputee. The results of this stupendous effort on the part of many people and various agencies have been systematically collected, sifted, and compiled into this volume in a most creditable manner. The Committee of the Academy of Orthopaedic Surgeons, the Surgeon General of the Army, and the Department of Medicine and Surgery, Veterans Administration, deserve the gratitude of all directly or indirectly concerned with rehabilitation of amputees.

This volume properly contains little about surgical procedures for amputation, but presents in adequate detail and with numerous, well-selected illustrations, a comprehensive review of the entire field of prosthetics for amputees of all types. The reader is introduced to the subject by an interesting short chapter on Historical Development of Artificial Limbs. A glance at the titles of the thirteen succeeding chapters gives some idea of the subjects discussed and the comprehensive approach:

2. Upper-Extremity Components
3. The Construction and Fitting of Upper-Extremity Prostheses
4. Harness Patterns for Upper-Extremity Prostheses
5. Lower-Extremity Components
6. The Construction and Fitting of Lower-Extremity Prostheses
7. Physical Treatment and Training of Amputees
8. Anatomical and Physiological Considerations in the Clinical Application of Upper-Extremity Prosthetics
9. Anatomical and Physiological Considerations in the Clinical Application of Lower-Extremity Prosthetics
10. The Principles of Amputation Surgery
11. Prescription in the Prosthetics Clinic
12. Cineplasty
13. The Special Problems of the Juvenile Amputee
14. Operation of the Prosthetics Clinic

Each chapter contains a well-selected bibliography. Many of the numerous, pertinent illustrations are line drawings that are well adapted to showing the details of construction of joints and harness. The photographs are excellent.

This volume is a worthy successor to Volume I. Both are necessary reference books for orthopedic surgeons, residents training in orthopedic surgery, prosthetists and therapists who train cripples in proper use of their appliances. All contributors to these volumes are to be congratulated for their work, and the Committee to Study Braces and Prostheses of the American Academy of Orthopaedic Surgeons, with Rufus H. Alldredge as Chairman, should be especially commended for its long-continued help in developing these valuable additions to our literature on prosthetics.

GUY A. CALDWELL, M. D.

Blood Diseases of Infancy and Childhood; by Carl H. Smith, M. A., M. D., The C. V. Mosby Company—1960, 572 p., price $17.00.

In the present plethora of medical textbooks on the market there has been one conspicuous absence—a book concerned with hematologic disorders in children. Many symposia, monographs, and special issues have attempted to cover the field; this book is the first to define childhood hematology from origin to destruction.

Dr. Smith has attempted to discuss and define every entity related to the hematopoietic system in children and in so doing has caused the major weakness of the book. His knowledge and ability are well known to all in his field, and he has made some significant contributions. However, the field of hematology, even if confined to pediatrics alone is too vast for one man to cover. There are some subjects in the book that are discussed in detail while others, just as important, are often scanned. In addition, 523 pages is not enough space to adequately define, describe, and initiate diagnosis in a field so large.

The preceding paragraph should not detract from the fact that this book is a good general approach to "detection of common blood disorders"; it is that! It is well-written, with adequate bibliography and liberal reference to more recent advances; for common disorders, treatment is adequately discussed although it is dogmatic in some instances, with little recognization of other possible approaches.

In summary, this book has long been needed; once arrived, one is pleased to have it but a little displeased with some aspects. The possible solution may be a manual or short book on diagnosis and a comprehensive reference text for those that seek further advances.

WILLIAM G. THURMAN, M. D.

PUBLICATIONS RECEIVED

The C. V. Mosby Co., St. Louis: The Cardiac Arrythmias, by Brendan Phibbs, M. D., Heredity in Ophthalmology, by Jules Francois.

Charles C Thomas, Publisher, Springfield, Ill.: Myxedema, by Jerry K. Aikawa, M. D.

The Williams and Wilkins Co., Balt.: The Clinical Apprentice; A Handbook of Bedside Methods, by John M. Naish, M. D., and John Apley, M. D. (2nd edit.); The Treatment of Tropical Diseases, by W. H. Jopling, M.R.C.P. (Lond.)